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BIBLIOGRAPHY

HUNGARIAN TECHNICAL ABSTRACTS. MAGYAR MUSZAKI LAPSZEMLE, 1959, VOL. 11, NO. 4, P. 117-160. [1959] 1v.
Order from HTCBN $1.00, $4.00/year

Consists of English abstracts and tables of contents of Hungarian technical literature.

LLU TRANSLATIONS BULLETIN. Mar 60, 245p.
Order from HMSO $0.77, $9.88/year

New translations of Russian scientific and technical literature, recent additions to the Lending Library Unit loan collection of 15,000 individual translations and the translating activities of official and commercial organizations are regularly noted in the LLU TRANSLATIONS BULLETIN. In addition each issue includes several complete translations of Russian papers on such important topics as automation, education, machine translation, scientific research and new developments in China.

SOVIET SCIENCE AND TECHNOLOGY, 1960, VOL. 3, NO. 11. A monthly guide to Soviet research. Jan 60, 65p.
Order from CB $25.00/year

English table of contents of 1958-1959 issues of all Soviet journals being translated into English on a continuing basis.

WORKS OF THE SCIENTIFIC-RESEARCH INSTITUTIONS OF THE HYDROMETEOROLOGICAL SERVICE DURING 1957 (CONTINUED) [BIBLIOGRAPHY]. 24 Feb 59, 6p. 14 refs. JPRS: L-652-N.
Order from OTS $0.50 59-13217

Trans. of Meteorologiya i Gidrologiya (USSR) 1958, no. 6, p. 61-63.

Eight publications of the Main Geophysical Observatory imeni A. I. Voyeykov and six publications of the State Hydrological Institute are described. Publication number, title, editor, number of pages, number of copies published, price (in rubles), and authors and titles of articles contained are given for each publication.

Library of Congress, Washington, D. C.
MONTHLY INDEX OF RUSSIAN ACCESSIONS. Mar 60, 325p.
Order from GPO $12.00/year

This index is a record of the publications in languages spoken in the Soviet Union currently received by the Library of Congress and a group of cooperating libraries. It consists of three parts: Part A lists monographic literature published after 1944, with the title in the original language preceded by its English translation; Part B lists periodicals published after 1946, with their tables of contents translated into English; Part C constitutes a subject guide to both the monographs and periodical articles listed in Parts A and B.

AGRICULTURE

AGRICULTURAL PRINCIPLES AND PRACTICES IN COMMUNIST CHINA. 15 June 59, 96p. JPRS: 768-D.
Order from OTS $2.25 59-11654

Trans. of Kwangtung Nung-yeh T'ung-hsun (Chinese People's Republic) 1958, no. 3, p. 2-6 and no. 6, p. 19-22; Nung-yeh K'o-hsüeh T'ung-hsun (Chinese People's Republic) 1958, no. 1, p. 2, 17-20, 23-25 and 34-36; no. 2, p. 84-86; no. 3, p. 131-132; no. 4, p. 207-212; no. 5, p. 242-243 and 280-281; and Hua-tung Nung-yeh (Chinese People's Republic) 1958, no. 2, p. 59-60.

Contents:
Influences of amount of seed sown, period of seedlings and seed variety on crop characteristics of paddy rice, by Kuang-shang Liang

Preliminary report of the results of a survey of the supply and chemical composition of farm manure in the first cooperative of Lung-pang Hsiang, Hsin-hui Hsien, unsigned article from the Department of Soil Chemistry, Hua-nan Academy of Agricultural Science

Areas of repeated plantation and natural conditions in five regions

Tentative regulations on domestic plant disease inspection, drawn up by the Ministry of Agriculture

How to develop sources of cattle feed, by Teh-shao Yung

Results of insect controls by dusting soybean and sugar beets with 20% insecticide "666", by Cheng-lun Wang, Lien-ying Hsiang, and Shun-chih Li

Some of China's best rice varieties, by Kuan-hui Tseng

On dense planting of cotton during the cotton leap-forward drive, by Ssu-tuan Chang

Contents of fertilizer elements in various fertilizer materials, by Sheng-hui Chiao

Prevention of the wilting of cotton blossom and pericarp, by Chao-lin Li

Mobilize all fertilizer sources to increase paddy rice production, by I-chih Liu

Kiangsu strives to fulfill agricultural expansion under the national program, by Shun-yuan Liu

FINANCIAL AND OPERATIONAL PLANS OF SOVIET EQUIPMENT AND REPAIR STATIONS. 6 Jan 59, 28p. JPRS/DC-L-1348.
Order from OTS $0.75 59-11406

Contents:

1. Equipment and Repair Stations and Kolkhoz-Sovskhoz Production. Trans. of Tekhnika v Sel'skom Khozyaystve (USSR) 1958, v. 18, no. 9 p. 1-4.
2. Financial and Operational Plan of RTS, by D. Startsev. Trans. of Tekhnika v Sel'skom Khozyaystve (USSR) 1958, v. 18, no. 9, p. 10-15.
3. Production-Financial Plan of the Dubovskaya RTS, by S. Voytsekhovskiy, G. Ignatenko and Leskov, Yu. Trans. of Tekhnika v Sel'skom Khozyaystve (USSR) 1958, v. 18, no. 10, p. 24-27.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 7, ABSTRACTS 29344-29627 (Soviet Abstracts. Biology). 3 Mar 59, 80p. JPRS: 1316-N.
Order from OTS $1.00 59-13264

Contents:
Section I. Plant Physiology (continued).
Section J. Soil Science.
Section K. Forestry.
Section L. Meadow Cultivation.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Chen, Yung-wen, Yen, Cheng-yuan and others.
REPORT ON PRELIMINARY INVESTIGATION OF LAND UTILIZATION IN CHUNG-MING TAO. 28 July 59, 15p. 1 ref. JPRS: 836-D.
Order from OTS $0.50 59-11730

Trans. of Ti-li-hsueh Tse-liao (Chinese People's Republic) 1957, no. 1, p. 165-174.

Chudnovskiy, A. F., and Rozhanskaya, O. D.
DETERMINATION OF TOTAL EVAPORATION OF AGRICULTURAL FIELDS BY THE HEAT BALANCE METHOD. 10 Mar 59, 30p. JPRS: L-676-N.
Order from OTS $0.50 59-13257

Trans. of Byulleten' Nauchno-Tekhnicheskoy Informatsii po Agronomicheskoy Fizike [sic] (USSR) 1956, no. 1, p. 5-14.

Chang, Chun-min.
TROPICAL AND SUB-TROPICAL CALCAREOUS SOILS OF CHINA. 11 Jan 60, 12p. JPRS: 2130-N.
Order from OTS $0.50 60-11177

Trans. of Ti-li Chih-shih (Chinese People's Republic) 1958, v. 9, no. 10, p. 476-478.

Chudnovskiy, A. F.
SCHEME OF CALCULATING THE TEMPERATURES IN SOIL ACCORDING TO A GIVEN WEATHER FORECAST. 16 Feb 59, 5p. JPRS: L-641-N.
Order from OTS $0.50 59-13195

Trans. of Byulleten' Nauchno-Tekhn[icheskoy] Inf[ormatsii] po Agronom[icheskoy] Fizike [sic] (USSR) 1956, no. 1, p. 18-20.

Ioffe, I. A.
COMPUTATION OF CERTAIN ELEMENTS OF THE HEAT REGIME OF WARM SOIL. 2 Mar 59, 10p. 8 refs. JPRS: L-670-N.
Order from OTS $0.50 59-13246

Trans. of Byulleten' Nauchno-Tekhnicheskoy Informatsii po Agronomicheskoy Fizike [sic] (USSR) 1957, no. 3, p. 11-17.

Konstantinov, P. N. and Plotnikov, N. Ya.
ON THE METHODS OF FIELD EXPERIMENTS (K Voprosu o Metodike Polevogo Opyta). [1959] 18p. Trans. A-1090.
Order from LC or SLA mi$2.40, $3.30 60-15350

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 6, p. 35-42.

Kriachko, Z. F.
EXPERIENCE IN COLORADO BEETLE CONTROL IN THE UKRAINE (Opyt Bor'by s Koloradskim Zhukom na Ukraine). [1959] 8p. (1 illus. omitted). Trans. A-1076.
Order from LC or SLA mi$1.80, ph$1.80 60-15336

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 3, p. 45-47.

Su, Yung-hsuan, Liu, I-fu, Chang, Pei.
AGRICULTURAL GEOGRAPHY OF THE HILLY REGION IN SOUTHEASTERN HUNAN. 28 July 59, 20p. JPRS: 835-D.
Order from OTS $0.50 59-11729

Trans. of Ti-li-hsueh Tze-liao (Chinese People's Republic) 1957, no. 1, p. 153-164.

Animal Husbandry

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1959, NO. 3 (Soviet Abstracts. Biology). 29 Jan 60, 103p. JPRS: 2199-N.
Order from OTS $1.00 60-11243

Contents:
Section Q. Farm Animals. Abstracts 11937-12127.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) (Soviet Abstracts. Biology).
Order from OTS $1.00

Contents:
Section R. Diseases of Farm Animals.
1958, no. 3, Abstracts 12221-12295, JPRS: 1304-N, 59-13250
1958, no. 20, Abstracts 92684-92761, JPRS: 1834-N, 59-13766
1959, no. 3, Abstracts 12131-12199, JPRS: 2263, 60-11309

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Baryshnikov, I. A.
REFLEX REGULATION OF LACTATION, tr. by F. Lang. [1959] [7]p. 30 refs. M 551.
Order from LC or SLA mi$1.80, ph$1.80 59-22694

Trans. of mono. Problemy Fiziologii Tsentral'noy Nervnoy Sistemy, Moscow/Leningrad, 1957, p. 62-72. (reprint of Dairy Science Abstracts (Gt. Brit.) Feb 59, v. 21, no. 2, review article no. 76.)

Calet, C.
MODE OF ACTION OF THE ANTIBIOTICS [AND] ORIENTATION OF THE RESEARCH UNDERTAKEN (Mode d'Action des Antibiotiques [and] Orientation des Recherches Entreprises). [1959] [26]p. 128 refs.
Order from SLA mi$2.70, ph$4.80 59-20882

Trans. of Annales de Zootechnie (France) 1956 [v. 5] no. 1, p. 12-19.

Ibele, J.
DESIRE TO LICK, PSEUDO DESIRE TO LICK AND "DESIRE TO LICK" OF CATTLE AND THEIR CONTROL (Lecksucht, Pseudo-lecksucht und "Sucht, zu Lecken" bein Kinde und deren Bekampfung). [1959] [8]p. 2 refs.
Order from SLA mi$1.80, ph$1.80 59-17251

Trans. of Ver[ein] z[ur] Förd[erung] der Moorkult[ur] im Deut[schen] Reiche. Landesanstalt für Moorwirtschaft [sic] (Germany) 1918, v. 2, p. 14-17.

Klabukov, P.
INTERNATIONAL CONFERENCE ON BREEDING AND ARTIFICIAL INSEMINATION OF CATTLE (Mezhdunarodnoy Soveshchaniye po Razvedeniyu i Iskusstvennomu Psemeneniyu Krupnogo Rogatogo Skota). [1959] 14p. 5 refs. Trans. A-1089.
Order from LC or SLA mi$2.40, ph$3.30 60-15349

Trans. of Vestnik Sel'skojhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 5, p. 133-136.

Steffen, Carl.
POTATO DRYING PROCESS ADAPTED TO PROVIDE DRY MIXED POTATO ANIMAL FOOD, tr. by P. C. C. 2 Feb 60, 7p.
Order from LC or SLA mi$1.80, ph$1.80 60-15541

Trans. of French patent 372,370, gr. 1, cl. 4, appl. 10 Dec 06, granted 18 Feb 07, pub. 4 Apr 07.

Plant Cultivation

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, (Soviet Abstracts. Biology).
Order from OTS $1.00

Contents:
Section J. Soil Science.
No. 22, Abstracts 99966-100125, JPRS: 2290, 60-11327
No. 23, Abstracts 104413-104496, JPRS: 2309, 60-11340

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958 (Soviet Abstracts. Biology).
Order from OTS $1.00

Contents:
Section K. Forestry.
No. 11, Abstracts 48705-48814, JPRS: 2186-N, 60-11234
No. 23, Abstracts 104497-104564, JPRS: 2310, 60-11341

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 14 (Soviet Abstracts. Biology). 1 Feb 60, 14p. JPRS: 2204-N.
Order from OTS $1.00 60-11249

Contents:
Section L. Meadow Cultivation. Abstracts 63250-63269.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 14 (Soviet Abstracts. Biology). 19 Feb 60, 140p. JPRS: 2277.
Order from OTS $1.00 60-11320

Contents:
Section M. Cultivated Plants. Abstracts 63270-63615

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL BIOLOGIYA (USSR) 1958, NO. 21 (Soviet Abstracts. Biology). 16 Feb 60, 6p. JPRS: 2259.
Order from OTS $1.00 60-11306

Contents:
Section N. Weeds and Weed Control. Abstracts 96206-96237.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958 (Soviet Abstracts. Biology).
Order from OTS $1.00

Contents:
Section O. Plant Diseases.
No. 19, Abstracts 87309-87379, JPRS: 2180-N, 60-11227
No. 21, Abstracts 96240-96308, JPRS: 2244-N, 60-11297

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Balyura, V. I.
VEGETATION PERIOD OF MAIZE ON NON-CHERNOZEM SOILS (Vegetatsionnyy Period Kukuruzy v Nechernozemnoy Polose). [1959] 25p. Trans. A-1073.
Order from LC or SLA mi$2.70, ph$4.80 60-15333

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 4, p. 23-33.

Chin, Jen-chang.
PLANT RESOURCES OF THE A-ERH-TAI CHAN IN SINKIANG. 28 July 59, 8p. JPRS: 839-D.
Order from OTS $0.50 59-11733

Trans. of Ti-li-hsueh Tze-liao (Chinese People's Republic) 1957, no. 1, p. 123-138.

Medvedev, Zh. A.
A NEW METHOD OF PLANT AUTORADIOGRAPHY (Novyy Metod Radioavtografii Rastenii) tr. by R. J. Zatorski. [1959] 3p. (2 figs. omitted) 1 ref. Trans. no. 4267.
Order from LC or SLA mi$1.80, ph$1.80 60-14002

Trans. of Priroda (USSR) 1957 [v. 46] no. 8, p. 90-92.

The procedure involved is briefly as follows. Freshly cut plant leaves are placed between layers of filter paper. A number of such "packets" is then inserted into a multiple folder separating one from another with sheets of clean filter paper. The number of sheets required depends on the fleshiness of leaves. The folder is placed between two flat steel bedplates and compressed to 150-200 atm or more, if possible (pressure conditions greatly influence the quality of imprints). A slow and careful increase of pressure to 50 - 100 atm and more, does not in most cases lead to the destruction of the cell system. Only the cellular liquor with pigments dissolved in it, penetrates into the filter paper. Quickly alternating pressure levels disturb the epidermic cell system and the leaf parenchyma and the content of both penetrates into the filter paper. After removing the residue mass, a clear green leaf input is obtained. The two sheets immediately adjoining the sample give the most distinct outlines, with the bottom sheet imprint showing slightly higher contrast.

Prutskov, F. M.
RICE GROWING IN CHINA (Kul'tura Risa v Kitaye). [1959] 19p. (Eng. German and Fr. summaries omitted) 11 refs. Trans. A-1088.
Order from LC or SLA mi$2.40, ph$3.30 60-15348

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 5, p. 97-102.

Zhukovskiy, P. M. and Rodionova, N. A.
SYNTHESIS OF CULTIVATED TYPES OF 42-CHROMOSOME WHEAT RESISTANT TO DISEASES (Sintez Kul'turnykh Tipov 42-Khromozomnykh Pshenits, Ustoychivykh k Bolezniyam). [1959] 11p. (4 figs. omitted) 8 refs. Trans. A-1016.
Order from LC or SLA mi$2.40, ph$3.30 59-16811

Trans. of Trudy po Prikladnoy Botanike, Genetike i Selektsii (USSR) 1957, v. 30, no. 3, p. 271-277.

ASTRONOMY

Mustel', E. R. and Yegorova, N. B.
STUDY OF THE SUN AND PROBLEMS OF GEOPHYSICS. 12 Jan 60, 5p. JPRS: 2133-N.
Order from OTS $0.50 60-11180

Trans. of Akademiya Nauk SSSR. Vestnik, 1959, [v. 29] no. 8, p. 87-89.

Topics are announced that were discussed at the comprehensive plenum of the Committee on Solar Research at the Astronomical Council of the USSR Academy of Sciences from 18 to 22 May in Leningrad.

Astrophysics

Aleksandrov, S. G. and Fedorov, R. Ye.
COSMIC RAY STUDY. 11 Dec 59 [13]p. (6 figs. omitted) AF 1256362.
Order from LC or SLA mi$2.40, ph$3.30 60-13211

Trans. of mono. Sovetskiye Sputniki i Komicheskaya Raketa (Soviet Sputniks and Space Rocket) Moscow, 1959, p. 95-105, 152-155 and 178-180.

The first section translated consists of general remarks on methods used in cosmic radiation study. The second portion describes the purposes and some of the equipment used in the cosmic radiation study with sputniks II and III. The third portion describes the aims and some of the equipment on the space rocket.

Bronshten, V.
MARS AND VENUS ARE NEXT TARGETS (Na Ocheredi Mars i Venera). 5 Nov 59 [6]p. AF 1256258.
Order from LC or SLA mi$1.80, ph$1.80 60-13183

Trans. of Krasnaya Zvezda (USSR) 1959, no. 238, p. 4.

Klyakotko, M. A. and Astapovich, I. S.
OBSERVATION OF SOLAR FLARES ON THE GAISh SPECTROHELIOSCOPE AND ON LENIN HILLS [AND] ELEVEN-YEAR VARIATION OF BRIGHTNESS, FORM AND SIZES OF COUNTERGLOW. Soviet-bloc International Geophysical Year Literature; Solar Activity. 17 Apr 59, 6p. 7 refs. JPRS: 668-D.
Order from OTS $0.50 59-11518

Trans. of Astronomicheskiy Tsirkulyar (USSR) 1958, no. 190, p. 16-19 and p. 25-26.

Krasovskiy, V. I.
SPECTRAL, ELECTROPHOTOMETRIC, AND RADAR RESEARCH ON AURORAE AND NIGHT AIRGLOW, tr. by John Miller. July 59 [64]p. 86 refs. T-RC-14+.
Order from LC or SLA mi$3.90, ph$10.80 59-22584

Trans. of mono. Spektral'nyye, Elektrofotometricheskiye i Radiolokatsionnyye Issledovaniya Polyarnykh Siyanii i Svecheniya Nochnogo Neba, Moscow, 1959.

Contents:
Hydrogen emission and two types of aurorae spectra, by Yu. I. Gal'perin
The observation of the aurora of 10-11 February, 1958, near Moscow, by A. V. Mironov, V. S. Prokudina, and N. N. Shefov
The intensity of some twilight and night sky emissions, by N. N. Shefov
Electrophotometric measurements in the auroral zone, by N. V. Dzhordzhio
Experiment in the interferometric investigations of the emission lines in aurorae, by T. M. Muliarchik
Observation of the line λ6562 A in the night sky spectrum, by V. S. Prokudina
Some results of the spectroscopic study of aurorae and airglow, by F. K. Shuiskaia

Radziyevskiy, V. V.
RETARDATION BY RADIANT AND CORPUSCULAR RADIATION WITH VARYING MASS OF THE SUN (Tormozheniye Luchistoy i Korpuskulyarnoy Radiatsiyey pri Peremennoy Masse Solntsa). [1959] [7]p. 3 refs. F-TS-9623/V.
Order from LC or SLA mi$1.80, ph$1.80 59-16062

Trans. of Akademiya Nauk SSSR. Doklady, 1951, v. 81, no. 2, p. 167-170.

When an absorbing spherical body of mass m, radius a, and constant density δ, revolves in a circular heliocentric orbit of radius R, and the sun in time dt radiates the mass dM in the form of corpuscles and energy, the total mass absorbed by the body is made up of a corpuscular component dm_1 and an energetic component dm_2; i. e., $dm_1 + dm_2 = (a^2/4R^2)dM$. If the body reradiates only the energetic radiation of the sun, dm_2, and if this reradiation is radially isotropic, (Astronomy--Astrophysics)
the variation of the orbital moment of momentum of the body, $K = m\sqrt{GMR}$, may be expressed as
$dK = \sqrt{GMR}\, dm + (m/2)\sqrt{(GR/M)}\, dM + (m/2)\sqrt{(GM/R)}\, dR$
$= dK_1 - dK_2$,
where G is the gravitational constant, $dm = dm_1$ is the total change in mass of the body, dK_1 is the moment of momentum contributed by the absorption of mass by the body, and $dK_2 = \sqrt{GMR}\, dm_2$ is the moment of momentum carried away by the mass radiated by the body. By substituting these values of the differentials in the second equation above, expressing m in terms of a and δ, and making use of the earlier equation, the equation
$(dR^2/dM) = (3/4\pi a\delta) - (2R^2/M)$
is obtained and solved for the extremeal cases: (1) $dm_1 \ll dm_2$, and (2) $dm_1 \gg dm_2$. The minimum radius of the orbit of Mercury, under any assumption

as to the character of the solar radiation, was found to be about 15×10^6 km, even when the mass of the sun was about seven times as great as now. Calculations show that even today the specific moment of momentum of Mercury is decreasing at least 12 times faster than that of the sun.

Shchigolev, B. M.
THE APPROXIMATE CALCULATION OF AN EPHEMERIS IN UNPERTURBED ELLIPTIC MOTION, tr. by F. T. Smith. 9 Oct 59 [26]p. 2 refs. T-118.
Order from LC or SLA mi$2.70, ph$4.80 60-13018

Trans. of Moscow U. Vestnik. Seriya Matematiki, Mekhaniki, Astronomii, Fiziki, Khimii (USSR) 1958 [v. 13] no. 4, p. 45-56.

The linearization of the differential equations of the two body problem is considered, being based on a partial average of the differential equations of motion. The linearity of the equations is 'violated' by the presence of the factor $1/r^3$ in all of the equations, thus the obvious method of linearization will be the replacement of this factor by its average value, if the motion is considered along an ellipse. (See also 60-13426)

BEHAVIORAL SCIENCES

THE SOVIET TRAINING PROGRAM FOR AUTOMATION AND COMPUTER SPECIALISTS. 11 Dec 59, [9]p. 1 ref. PAL 60-13.
Order from OTS $0.50 60-21187

This memorandum provides information obtained primarily from statements in the Soviet press, school catalogs, etc. on Soviet plans and efforts to train automation and computer specialists.

Psychology

Biryukov, D. A.
MYTH OF THE SOUL; PRESENT DAY SCIENCE CONCERNING THE PSYCHIC ACTIVITIES OF MAN. 25 Jan 60 [178]p. 48 refs. JPRS: L-1143-N.
Order from OTS $3.00 60-11131

Trans. of mono. Mif o Dushe; Sovremyennaya Nauka o Psikhicheskoy Deyatel'nosti Cheloveka, Moscow, 1958, no. 2 [sic] p. 1-168.

This monograph, which appears to be slanted for the layman, is according to its introduction a piece of propaganda for the atheistic point of view. Chapter headings are as follows: Psychic activity, result of the physiological processes of the brain; Scientific study of higher nervous activity; The effect of the environment on psychic acitvity; Is there a psychic life in animals? Characteristics of the psychic activity of man; Instincts; On the psychics of man; Science vs. superstitions; Science and religion are incompatible.

Platonov, K. K.
PSYCHOLOGICAL PROBLEMS OF OUTER-SPACE FLIGHT (Psikhologicheskiye Problemy Kosmicheskogo Poleta). 16 Dec 59 [12]p. 21 refs. AF 1256363.
Order from LC or SLA mi$2.40, ph$3.30 60-13520

Trans. of Voprosy Psikhologii (USSR) 1959 [v. 5] no. 3, p. 56-65.

Talyzina, N.
PSYCHOLOGY AT THE SERVICE OF THE UPBRINGING AND EDUCATION OF CHILDREN. 17 Dec 59, 15p. JPRS: L-1111-N.
Order from OTS $0.50 60-11088

Trans. of Narodnoye Obrazovaniye (USSR) 1959, no. 4, p. 107-111.

Articles on child psychology which have appeared in Voprosy psykhologii since 1955 are reviewed. "In summing up, we can say with assurance that not one of these investigations has been reflected in the methods used in the public schools, and the educational shortcomings that were noted in psychological literature 10 to 15 years ago are also observable today ... Large sums of state money are spent on research, but the results never go beyond the pages of magazines and handbooks read by a limited number of specialists."

BIOLOGICAL SCIENCES

Querci, M., Amasio, C., and Visca, A.
TREATMENT OF HYPOTENSION IN SURGICAL PRACTICE; FIRST CLINICAL STUDIES WITH SYNTHETIC HYPERTENSIN (Sul Trattamento dell'Ipotensione nella Pratica Chirurgica; Primi Studi Clinica coll'Ipertensina Sintetica). [1959] 17p. 19 refs.
Order from SLA mi$2.40, ph$3.30 60-14195

Trans. of Minerva Anestesiologica (Italy) 1958, v. 24 [no. 12] p. 505-509.

From clinical studies it seems that the use of hypertensin is particularly indicated in prevention and therapy of surgical shock. Minimal doses given by intravenous infusion may be sufficient to produce a moderate vasal hypertension. In severe collapse, hypertensin has been shown to possess alleviating properties, comparable if not greater than those of norepinephrine. It has an excellent sympathicomimetic action, increasing systolic as well as diastolic pressure and producing bradycardia by reflex. The change in renal circulation during an intravenous infusion is no contraindication. Data on 7 surgical cases in which the drug was used effectively are presented.

Anatomy and Physiology

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958 (Soviet Abstracts. Biology).
Order from OTS $1.00

Contents:
Section S. Human and Animal Morphology.
No. 9, Abstracts 40673-40870, JPRS: 2231-N, 60-11281
No. 23, Abstracts 105871-106044, JPRS: 2253, 60-11304

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

SECHENOV PHYSIOLOGICAL JOURNAL OF THE USSR, 1959, VOL. 45, NO. 6. Dec 59, 132p.
Order from PP $60.00/year.

Trans. of Fiziologicheskiy Zhurnal SSSR, 1959, v. 45, no. 6, p. [633]-745.

Chang, Hsiang-t'ung.
RESEARCHES ON THE ELECTRO-PHYSIOLOGY OF VISION IN COMMUNIST CHINA. 24 Dec 59, 8p. 10 refs. JPRS: 1085-D.
Order from OTS $0.50 60-31011

Trans. of K'o Hsüeh T'ung Pao (Chinese People's Republic) 1959, no. 16, p. 505-507.

Komissarenko, V. P.
CERTAIN PROBLEMS AND TASKS IN THE STUDY OF THE MECHANISM OF HORMONAL ACTION. 22 Jan 60, 16p. 3 refs. JPRS: L-996-D.
Order from OTS $0.50 59-11620

Trans. of Problemy Endokrinologii i Gormonoterapii (USSR) 1957, v. 3, no. 5, p. 62-73.

This lecture includes the comment that the tendency of certain endocrinologists to explain the physiological mechanism of hormones as affecting only the cerebral cortex or the receptor apparatus is unsound. Soviet endocrinologists in particular have erred in this respect. This failure, which should be immediately remedied, is attributed in part to a lack of sufficient quantities of crystalline hormonal preparations for research, as well as to an inadequate supply of precision apparatus.

Mihovilovic, Miro.
PHYSICAL IMPROVEMENT OF YOUTH THROUGH RECREATION (La Culture Physique Moyen de Recreation de la Jeunesse). [1959] [20]p.
Order from SLA mi$2.40, ph$3.30 59-20870

Trans. of Revue de l'Education Physique [sic] 1957, no. 181, Sep, p. 1-12.

The results of the investigation conducted on the administration and effects of various forms of physical activity used in recreation of works brings forth the following conclusions. Physical activity administered in recreation met all the objectives of recreation for man: invigoration, rest, amusement. It strengthens the body, decreases the number of illnesses of the workers, contributes to compensation and correction of the harmful results of working conditions, ameliorates the general condition of the individuals and at the same time their work ability; indirectly it favorably influences production. It offers opportunities for the development of sociableness, improvement of human and social qualities and can contribute to the improvement of relations of men with each other.

Samoylova, Z. T. and Rayskina, M. Ye.
HEMOBAROSTAT--AN APPARATUS FOR MAINTAINING ARTERIAL PRESSURE AT A CONSTANT LEVEL. 28 Jan 60, 7p. 3 refs. JPRS: L-1178-N.
Order from OTS $0.50 60-11205

Trans. of Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya (USSR) 1959, v. 3, no. 6, p. 65-68.

A modification of the apparatus developed by Pearce and Gowdey (J. Applied Physiol., 6: 441-444, 1954) is described.

Strelin, G. S. and Suvorova, L. V.
THE ROLE OF VITAMIN C IN THE MECHANISM OF THE REACTIVE INHIBITION OF CELL DIVISION OBSERVED IN THE CASE OF PAIN STIMULI INFLICTED UPON ANIMALS (Znacheniye Vitamina C v Mekhanisme Reaktivnogo Tormozheniya Kletochnogo Deleniya pri Bolevom Razdrazhenii Zhivotnykh). June 58, 7p. 15 refs. C.T.S. no. 466.
Order from LC or SLA mi$1.80, ph$1.80 60-13315

Trans. of Akademiya Nauk SSSR. Doklady, 1956, v. 110, no. 3, p. 483-486.

Biochemistry

BIOCHEMISTRY, 1959, VOL. 24, NO. 3, P. 359-533. 1960, 1v.
Order from CB $10.00, $20.00/year

Trans. of Biokhimiya (USSR) 1959, v. 24, no. 3, p. 385-[571].

Aoyama, Tatsuya.
ON THE FREE AMINO ACIDS IN THE BRAIN. III. ON THE FREE AMINO ACIDS AND RELATED COMPOUNDS IN THE BRAIN OF CATFISH. [1959] [16]p. (2 figs. omitted) 29 refs.
Order from SLA mi$2.40, ph$3.30 60-14080

Trans. of [Seikagaku] (Japan) 1958, v. 30, no. 6, p. 452-456.

Bresler, S. E., Samsonov, G. V., and Sele[z]neva, N. A.
ENZYMIC SYNTHESIS UNDER PRESSURE. [1959] 11p. (4 figs. refs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 60-10828

Partial trans. (p. 524ff and p. 534-537) of Biokhimiya (USSR) 1949, v. 14, no. 6, p. 524-537.
A complete translation is available from LC or SLA mi$3.00, ph$6.30 as 59-20355 [1959] [36]p.

Goldovskiy, A. M.
SYNOPSIS OF BIOCHEMICAL CHANGES OF ORGANISMS IN THE COURSE OF EVOLUTION, tr. by Serhij Krascheninnikow. [1960].
Order from ANSP

Trans. of Zhurn[al] Obshchey Biologii (USSR) 1948, v. 9, no. 3, p. 181-201.

Neher, R., Meystre, Ch., and Wettstein, A.
NEW 16 ALPHA-HYDROXY STEROIDS FROM HUMAN URINE AND FROM HOG ADRENALS; ISOLATION, CONSTITUTION, AND SYNTHESIS. [1959] 30p. (5 diagr. 7 figs. omitted) 54 refs.
Order from SLA mi$2.70, ph$4.80 60-14129

Trans. of Helv[etica] Chim[ica] Acta (Switzerland) 1958, v. 41, no. 6, p. 132-152.

Silakova, A. I.
CARNITINE AND ITS ROLE IN METABOLISM (VITAMIN B_T OF GROUP B) (Karnitin i Ego Rol' v Obmene Veshchestv). Jan 60, 43p. 83 refs. RTS no. 1087.
Order from LC or SLA mi$3.30, ph$7.80 60-15068

Trans. of Ukrayins'kyy Biokhimichnyy Zhurnal (USSR) 1958, v. 30, no. 4, p. 604-639.

General Biology

BIOPHYSICS, 1959, VOL. 4, NO. 2. Jan 60, 142p.
Order from PP $30.00/year

Trans. of Biofizika (USSR) 1959, v. 4, no. 2, p. 129-254.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 9, ABSTRACTS 37908-38251 (Soviet Abstracts. Biology). 26 Feb 59, 46p. JPRS: 1299-N.
Order from OTS $1.00 59-13242

Contents:
Section B. General Biology.
Section E. Virology.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL BIOLOGIYA (USSR) 1959, NO. 1 (Soviet Abstracts. Biology). 26 Jan 60, 45p. JPRS: 2191-N.
Order from OTS $1.00 60-11238

Contents:
Section B. General Biology. Abstracts 206-385.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Microbiology

JOURNAL OF MICROBIOLOGY, EPIDEMIOLOGY AND IMMUNOBIOLOGY, 1959, VOL. 30, NO. 4. Mar 59, 159p.
Order from PP $50.00/year

Trans. of Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii (USSR) 1959, v. 30, no. 4, p. 3-157.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 3 (Soviet Abstracts. Biology). 21 Jan 59, 1v. JPRS: 1154-N.
Order from OTS $1.00 59-13068

Contents:
Section F. Microbiology (continued): Abstracts 9742-9867.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Agata, Angelo de
ACTION OF VITAMIN B_{12}. Note 10 on In Vitro Action of Vitamins on Strains of Staphylococcus Aureus Resistant to Antibiotics. [1959] 6p. Trans. 479.
Order from SLA mi$1.80, ph$1.80 60-14084

Trans. of unidentified mono. pub. Catania, 1956.

Vitamin B_{12} is not capable of changing in vitro the sensitivity of Staphylococcus aureus to antibiotics and the strains resistant to numerous antibiotics remain equally resistant even after five passes in media containing graduated quantities of vitamin B_{12}.

Buttiaux, R., Tacquet, A., and Gaudier, B.
BACTERIOLOGY OF INTESTINAL SYNDROMES INDUCED BY ANTIBIOTICS. [1959] 23p. (2 tables omitted) 63 refs.
Order from SLA mi$2.70, ph$4.80 60-14098

Trans. of Arch[ives des] Mal[adies de] l'App[areil] Digestif [et des Maladies de la Nutrition] (France) [1955, v. 44] no. 6, suppl. p. 99-115.

Dolbnin, T.
THE BACTERIOLOGICAL WEAPON AND PROTECTION FROM IT. 23 Dec 59, 7p. JPRS: L-1154-N.
Order from OTS $0.50 60-11148

Trans. of Voyenyye Znaniya (USSR) 1959, v. 35, no. 1, p. 28-29.

Monod, Jacques.
THE CONTINUOUS CULTURE METHOD; THEORY AND APPLICATIONS (La Technique de Culture Continué; Théorie et Applications) tr. by P. Hajdu. 6 Aug 59, 37p. (4 figs. omitted) 3 refs.
Order from LC or SLA mi$3.00, ph$6.30 59-18840

Trans. of Institut Pasteur [Paris]. Annales (France) 1950, v. 79, no. 4, p. 390-410.
Another translation is available from SLA mi$2.70, ph$4.80 as 59-17834 [1959] [21]p.

Yuravlyov, S. Y.
A DEVICE FOR BACTERIOLOGICAL SEEDINGS. [1959] 2p.
Order from LC or SLA mi$1.80, ph$1.80 60-14127

Trans. of Veterinariya (USSR) 1959, v. 36, no. 8, p. 79.
Another translation is available from LC or SLA mi$1.80, ph$1.80 as 59-22299, Trans V-1496, 20 Oct 59, 3p.

Neurology and Psychiatry

Chugunov, S. A.
CLINICAL ELECTROENCEPHALOGRAPHY, PT. II, CHAP. VII. 2 Feb 59, [18]p. (15 figs. omitted) 20 refs. JPRS: L-625-N.
Order from OTS $0.50 59-13111

Trans. of mono. Klinicheskaya Elektro-Entsefalografiya, Moscow, 1956, p. 85-102.

Maksudov, G. A. and Dzhibladze, D. N.
SURVEY OF THE PROBLEM-THEMATIC PLAN IN THE FIELD OF NEUROPATHOLOGY THROUGHOUT THE SOVIET UNION FOR 1959. 26 Jan 60, 19p. JPRS: L-1177-N.
Order from OTS $0.50 60-11204

Trans. of Akademiya Meditsinskikh Nauk SSSR, Vestnik, 1959, v. 14, no. 11, p. 62-72.

Pathology

OUR AIMS. 21 Aug 59, 6p. JPRS: L-913-N.
Order from OTS $0.50 59-13800

Trans. of Sudebno-Meditsinskaya Ekspertiza (USSR) 1959, v. 2, no. 2, p. 3-6.

Problems confronting investigators in forensic medicine in the USSR are outlined. Reference is made to new and more elaborate techniques of blood

PROBLEMS OF ONCOLOGY, 1959, VOL. 5, NO. 3. Jan 60, 150p.
Order from PP $30.00/year

Trans. of Voprosy Onkologii (USSR) 1959, v. 5, no. 3, p. 259-383.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1959, NO. 1 (Soviet Abstracts. Biology). 15 Feb 60, 59p. JPRS: 2245-N.
Order from OTS $1.00 60-11298

Contents:
Section U. [General] Problems of Pathology. Abstracts 4028-4362.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Antonov, I. A.
THE MEDICAL INSTRUMENT INDUSTRY DURING FORTY YEARS OF SOVIET RULE. 9 Dec 58, 8p. JPRS: L-548-N.
Order from OTS $0.50 59-11192

Trans. of Meditsinskaya Promyshlennost' SSSR, 1957, v. 11, no. 10, p. 13-18.

Banfi, Alberto.
BILATERAL PARAGANGLIOMA OF THE VAGUS (Paraganglioma Bilaterale del Vago). Feb 60 [6]p. (4 figs. [refs.] omitted).
Order from SLA mi$1.80, ph$1.80 60-14182

Trans. of Minerva Medica (Italy) 1959, v. 50 [no. 12] p. 377-380.

Barsukov, M. I.
PROBLEMS IN THE STUDY OF THE THEORY AND HISTORY OF MEDICINE IN THE USSR IN THE LIGHT OF THE DECISIONS OF THE 21ST CONGRESS OF THE COMMUNIST PARTY OF THE SOVIET UNION. 1 Dec 59, 14p. 9 refs. JPRS: L-1114-N.
Order from OTS $0.50 60-11093

Trans. of Sovetskaya Meditsina (USSR) 1959, v. 23, no. 7, p. 3-12.

Pseudotheoreticians demand that historians "stick only to the facts" under the banner of objectivism, and that profound philosophical rationalization of historic reality be avoided. So-called pure objectivism without a Marxist party analysis of events inevitably leads to subjectivism which contradicts Marxist dialectics. The problem is to fight such "factology" in every possible way. The issuing of an official history of medicine in the USSR and of a journal of medical history based on the above principles is contemplated.

Grabar, P., Fauvert, R. and others.
STUDY OF THE PROTEINS OF THE MYELOMA II. IMMUNO-ELECTROPHORETIC ANALYSIS OF THE SERUMS OF 30 PATIENTS (Etude sur les Proteines du Myelome II. Analyse Immuno-Electrophoretique des Serums de 30 Malades) tr. by Wilfred Grosjean. 3 Dec 58, 31p. (12 figs. omitted) 11 refs.
Order from LC or SLA mi$3.00, ph$6.30 59-12336

Trans. of Rev[ue] Franc[ais] d'Etudes Clin[iques] et Biol[ogiques] (France) 1956, v. 1, p. 175-186.

Ivanov, Yu. N.
WHAT'S NEW IN THE ORGANIZATION OF PUBLIC HEALTH IN THE RUMANIAN PEOPLE'S REPUBLIC. 16 Feb 59, 9p. JPRS: 1255-N.
Order from OTS $0.50 59-13208

Trans. of Sovetskaya Meditsina (USSR) 1958, v. 22, no. 6, p. 135-141.

The French style intern-extern system abandoned in 1948 is to be reviewed, and the system of professional advancement and qualification of physicians is to be drastically overhauled to assure a better distribution of trained personnel, especially in rural areas. Hospitals are described.

Kobyzev, A. S.
THE SIGNIFICANCE OF ESTROGENIC HORMONES IN THE PATHOGENESIS OF LEUKEMIA. 22 Jan 60, 8p. 14 refs. JPRS: L-998-D.
Order from OTS $0.50 59-11622

Trans. of Problemy Endokrinologii i Gormonoterapii (USSR) 1957, v. 3, no. 5, p. 114-117.

Two case histories are presented. In both patients, leukemic changes were first observed after estrogen

Lapin, B. A. and Yakovleva, L. A.
GASTRO-INTESTINAL TRACT TUMORS IN MONKEYS AFTER PROLONGED CHOLESTEROL ADMINISTRATION. 29 Dec 59, 10p. 9 refs. JPRS: L-1156-N.
Order from OTS $0.50 60-11151

Trans. of Arkhiv Patologii (USSR) 1959, v. 21, no. 10, p. 25-30.

Narahara, Noriaki and Matsumoto, Shunji.
SUCCESSFUL TREATMENT OF PROSTATIC CANCER WITH KENACORT AND TESPAMIN COMBINATION. [1959] 5p. 3 refs.
Order from SLA mi$1.80, ph$1.80 60-14083

Trans. of J[ournal of[Antibiotics. Ser[ies] B. (Japan) 1959, v. 12, no. 6, p. 198-199.

Case history.

Nosov, S. D.
HANDBOOK OF INFECTIOUS CHILDREN'S DISEASES: EXCERPTS. 4 Feb 59, 9p. (1 fig. omitted) JPRS: L-620-N.
Order from OTS $0.50 59-13119

Trans. of mono. Uchebnik Detskikh Infektsionnykh Bolezney, Moscow, 1957, p. 298-302.

The etiology, prophylaxis, clinical course and therapy of brucellosis, foot-and-mouth disease, and serum sickness are discussed.

Schaub, Frank.
THE HEART IN MYXEDEMA AND HYPOTHYROIDISM (Das Herz bei Myxödem und Hypothyreose). Feb 60 [4]p.
Order from SLA mi$1.80, ph$1.80 60-14180

Partial trans. (summary p. 36-37) of Ergebnisse der Inneren Medizin und Kinderheilkunde (West Germany) 1958, v. 9 [no. 1] p. 1-37.

Skurkovich, S. V. and Zaretskiy, I. I.
THE EFFECT OF IMMUNIZATION THERAPY ON RENAL FUNCTION IN BURN CASES (Vlivaniya Immunoterapii na Funktsional'noye Sostoyaniye Poche pri Ozhonovoy Belezni) tr. by Tatiana Boldyreff. 22 Jan 60, 14p. 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-15158

Trans. of Khirurgiya (USSR) 1959, no. 7, p. 16-20. Another translation is available from OTS $1.75 in 59-13919, JPRS: L-1006-N, 8 Oct 59, 62p.

Wolter, J. Reimer.
PATHOLOGY OF DEGENERATIVE ALTERATIONS OF THE CORNEAL ENDOTHELIUM (Zur Pathologie der Degenerativen Veränderungen des Hornhautendothels) tr. by P. Pallamary. 8 Apr 59, 15p. (9 figs. omitted) 21 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-14742

Trans. of Klinische Monatsblätter für Augenheilkunde, pub. by Ferdinand Enke Verlag, Stuttgarte (West Germany) 1957, v. 130, no. 5, p. 666-676.

Voynova, N. D., Zatsepina, N. D., and Mizina, A. V.
TREATING TRACHOMA PATIENTS WITH ANTIBIOTICS. [Paper] reported at All-Union Conference on Antibiotics (no. 2). 22 Jan 60, 4p. JPRS: L-961-D.
Order from OTS $0.50 59-11564

Trans. of unidentified Russian mono.

Tsfasman, A. Z. and Yegorov, P. I.
DETERMINATION OF THE FUNCTION OF THE THYROID GLAND BY EXCRETION OF I^{131} WITH THE URINE. 22 Jan 60, 5p. 11 refs. JPRS: L-997-D.
Order from OTS $0.50 59-11621

Trans. of Problemy Endokrinologii i Gormonoterapii (USSR) 1957, v. 3, no. 5, p. 110-113.

Struchkov, V. I. and Marshak, A. M.
COMBINED USE OF ANTIBIOTICS DURING THE SURGICAL TREATMENT OF PULMONARY SUPPURATIONS. [Paper] reported at All Union Conference on Antibiotics (no. 2). 22 Jan 60, 6p. JPRS: L-960-D.
Order from OTS $0.50 59-11563

Trans. of unidentified Russian mono.

Pharmacology and Toxicology

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 12 (Soviet Abstracts. Biology). 29 Jan 60, 57p. JPRS: 2202-N.
Order from OTS $1.00 60-11246

Contents:
Section V. Pharmacology and Toxicology. Abstracts 56556-56900.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Agapov, A. S.
PREVENTION OF REACTIONS AND COMPLICATIONS DURING INTRAVENOUS INJECTIONS OF BERLEN'KIY'S THERAPEUTIC SERUM. 22 Jan 60, 7p. JPRS: L-918-D.
Order from OTS $0.50 59-11607

Trans. of Khirugiya (USSR) 1957, no. 11, p. 60-62.

Alcorta, M. E. R. and Vucetich, D. C.
A CASE OF FATAL INTOXICATION WITH CHLORDANE. [1959] 4p.
Order from ATS $7.25 ATS-75L34SP

Trans. of Univ[ersidad] Nac[iona]l [del] Litoral. Inst[ituto de] Invest[igaciones] Microquim[icas]. Publ[icacione]s (Argentina) 1957, anno 21, no. 23, p. 75-80.

Al'patov, V. V. and Nastyukova, O. K.
THE SPECIFICITY OF THE ACTION OF THE OPTICAL ISOMERS OF ACRICHINE ON SPECIES OF MOLLUSKS WITH TESTS HAVING BOTH DEXTRAL AND SINISTRAL COILING OF THE SPIRES. [1959] 4p.
Order from ATS $8.00 ATS-35L37R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1948, v. 59, no. 6, p. 1221-1224.

Boquien, M. Y. and Alliot, G.
DIGESTIVE DISORDERS INDUCED BY ANTIBIOTICS IN THE SUB-MESACOLIC REGION; A CLINICAL AND THERAPEUTIC STUDY. [1959] 28p.
Order from SLA mi$2.70, ph$4.80 60-14099

Partial trans. of Arch[ives des] Mal[adies de] l'App[areil] Digestif [et des Maladies de la Nutrition] (France) 1955 [v. 44] no. 6, suppl, p. 132-[159].

Cornet, Andre.
DIGESTIVE DISORDERS INDUCED BY ANTIBIOTICS IN THE SUPRA-MESOCOLIC REGION (ESOPHAGUS, STOMACH, DUODENUM). A CLINICAL AND THERAPEUTIC STUDY. [1959] 18p.
Order from SLA mi$2.40, ph$3.30 60-14097

Trans. of Arch[ives des] Mal[adies de] l'App[areil] Digestif [et des Maladies de la Nutrition] (France) 1955 [v. 44] no. 6, suppl, p. 117-131.

Gersmeyer, E. F., Spitzbarth, H., and Weyland, H.
CIRCULATORY STUDIES WITH SYNTHETIC HYPERTENSIN II. (Kreislaufuntersuchungen mit Synthetischem Hypertensin II). [1959] 17p. 40 refs.
Order from SLA mi$2.40, ph$3.30 60-14177

Trans. of Klin[ische] W[ochen]schr[ift] (Germany) 1958, v. 36 [no. 22] p. 1061-1066.

The effect of synthetic hypertensin II on the systemic and pulmonary circulation in healthy experimental persons was examined by measuring the physical circulatory values (Broemser-Ranke and Wezler-Böger), the pressure and rate of flow in the pulmonary artery and the external iliac vein by cardiac catheterization and the pressure of the postarteriolar vessels of the forearm by pressure plethysmography. The well-known increases in systolic and diastolic pressure and the effect, twice as great as that of norepinephrine, were confirmed. The hypertension due to hypertensin II must be considered a resistance hypertension with considerably increased total peripheral resistance. In analogy to the changes of pressure in the systemic circulation, we observe also in the pulmonary artery and in the external iliac vein a rise of pressure connected with a fall in the rate of flow, so that these findings allow us to conclude that the reduction in the intensity of flow is connected with a reduction of the heart minute volume. The pressure in the postarteriolar vessels (capillaries and veins) of the forearm falls under hypertensin II. No side effects or signs of intolerance were observed with the doses used.

Meshalova, A. N.
DEVELOPMENT OF THE PRODUCTION OF BACTERIAL PREPARATIONS DURING THE YEARS OF SOVIET RULE. 9 Dec 58, 7p. JPRS: L-549-N.
Order from OTS $0.50 59-11193

Trans. of Meditsinskaya Promyshlennost' SSSR, 1957, v. 11, no. 10, p. 18-22.

Smelyanskiy, Z. B. and Ulanova, L. P.
NEW STANDARDS FOR PERMISSIBLE LEVEL OF TOXIC GASES, VAPORS AND DUST IN THE AIR OF INDUSTRIAL PREMISES. 15 Jan 60, 17p. 1 ref. JPRS: L-2001-D.
Order from OTS $0.50 60-31022

Trans. of Gigiyena Truda i Professional'nyye Zabolevaniya (USSR) 1959 [v. 3] no. 5, p. 7-15.

These standards for maximum allowable concentrations of toxic gases, vapors and dusts in the air of work spaces were approved by the Main State Sanitation Inspection of the USSR on 10 January 1959. Observance of the standards has been obligatory in all industrial construction since that date, and it has been required in all operating plants since 1 January 1960.

Vereshchako, F. A.
TOXICITY OF THE LEAVES OF DALMATIAN CAMOMILE (Toksichnost List'ev Dalmatskoy Romashki). Dec 59, 5p. RTS no. 1279.
Order from LC or SLA mi$1.80, ph$1.80 60-13466

Trans. of Aptechnoye Delo (USSR) 1958 [v. 7] no. 2, p. 31-33.

Radiobiology

THE USE OF RADIOISOTOPES IN MEDICINE. A BIBLIOGRAPHY, tr. by Maria Kassatkin. 21 Sep 59, 22p. 208 refs.
Order from LC or SLA mi$2.70, ph$4.80 UCRL Trans-494

Trans. from reference cards in Russian

Aleksandrovskaya, M. M.
THE INFLUENCE OF VARYING DOSES OF IONIZING RADIATION ON THE MORPHOLOGY OF THE ANIMAL BRAIN AFTER TOTAL-BODY IRRADIATION. 24 Nov 59, 5p. JPRS: L-1098-N.
Order from OTS $0.50 60-11066

Trans. of Meditsinskaya Radiologiya (USSR) 1958 [v. 3] no. 8, p. 79-81.

Balabukha, V. S. and Fradkin, G. Ye.
ACCELERATION OF THE ELIMINATION OF RADIOACTIVE ISOTOPES FROM THE ORGANISM UNDER THE EFFECT OF COMPLEX-FORMING COMPOUNDS. 26 Jan 60, 42p. 74 refs. JPRS: L-1169-N.
Order from OTS $1.25 60-11194

Trans. of mono. Nakopleniye Radioaktivnykh Elementov v Organizme i ikh Vyvedeniye (Accumulation of Radioactive Elements in the Body and the Excretion of them) Moscow, 1958, p. 44-85.

Beliayev, Yu. A.
PHYSICOCHEMICAL STATE OF PLUTONIUM (Pu^{239}) IN BLOOD AFTER ITS INTRAVENOUS ADMINISTRATION, tr. by Lydia Venters. Oct 59, 9p. 11 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3878

Trans. of Meditsinskaya Radiologiya (USSR) 1959, v. 4, no. 9, p. 45-51.

Gorodetskiy, A. A. and Chebotarev, Ye. Ye.
THE TREATMENT OF RADIATION SICKNESS. 2 Dec 59, 15p. JPRS: L-1110-N.
Order from OTS $0.50 60-11087

Trans. of Novyy Khirurgicheskiy Arkiv [Ukraynskoy SSR] 1959, no. 4, p. 3-12.

Korol'kova, T. A.
ELECTROPHYSIOLOGICAL STUDY OF THE EFFECT OF IONIZING RADIATION ON THE FUNCTIONAL CONDITION OF THE CEREBRAL CORTEX UNDER NORMAL AND PATHOLOGICAL CONDITIONS. 20 Nov 59, 23p. 22 refs. JPRS: L-1074-N.
Order from OTS $0.75 60-11036

Trans. of [Akademiya Nauk SSSR] Institut Vysshey Nervnoy Deyatel'nosti. Trudy. Ser[iya] Fiziologi[cheskaya] 1959, v. 3, p. 121-135.

Livanov, M. N. and Kondrat'yeva, I. N.
THE SENSITIVITY OF THE NERVOUS SYSTEM TO LOW RADIATION DOSES. 4 Dec 59, 19p. 34 refs. JPRS: L-1118-N.
Order from OTS $0.50 60-11105

Trans. of Meditsinskaya Radiologiya (USSR) 1959 [v. 4] no. 9, p. 3-12.

Mathé, Georges and Bernard, Jean.
FREQUENCY OF LEUKEMIA AND TUMORS IN $C_{57}Bl_6$ MICE HAVING RECEIVED PLASMA FROM IRRADIATED ANIMALS AT BIRTH (Fréquence de Leucémies et de Tumeurs chez des Souris $C_{57}Bl_6$ Ayant Recu à la Naissance du Plasma d'Animaux Irradies) tr. by P. Hajdu. 27 July 59, 6p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-19184

Trans. of Rev[ue] Franc[ais] d'Études Clin[iques] et Biol[ogiques] (France) 1958, v. 3, no. 3, p. 257-258.

Seventy four $C_{57}Bl_6$ mice were injected soon after birth with plasma from adult animals of the same strain previously subjected to irradiation. Out of 11 animals surviving the injection four died of leukemia, one of reticulum cell sarcoma and four of epithelial tumors. This incidence of leukemia and tumors is considerably higher than in the control animals.

Moskalev, Yu. I.
DATA ON THE DISTRIBUTION OF Pm^{147}, tr. by A. L. Monks. 29 Dec 59, 5p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3938

Trans. of Meditsinskaya Radiologiya (USSR) 1959, v. 4 [no. 6] p. 73-75.

The results of this experimental work using white rats indicate that the Pm^{147} distribution is similar to that of La^{140} and Ca^{144}. All these elements are selectively deposited in the liver and skeleton and are excreted primarily from the feces, with only slight amounts excreted from the skeleton. (Extracted from the report)

Novikova, A. P. and Voskresenskiy, S. P.
CERTAIN FEATURES IN THE DEVELOPMENT OF PROGENY IN DOGS SUBJECTED TO THE ACTION OF PRODUCTS OF U FISSION, tr. by A. L. Monks. 8 Dec 59, 7p. 6 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3923

Trans. of Meditsinskaya Radiologiya (USSR) 1959, v. 4 [no. 2] p. 15-19.
Another translation is available from OTS $0.50 as 59-13584, JPRS: L-807-N, 6p.

Products of uranium fission given to female dogs along with the food in a dose of 1 μc/kg body wt are transmitted to offspring born within 4 yr of administration of the radioactive substances. The development of the offspring of injured dogs is distinguished by retardation of wt gain, and reduced viability up to the age of 6 mo, in spite of the absence of detectable anomalies in organs or systems. The least viable are pups from parents both of which were injured, and the most viable are those from an injured male and a healthy female. The highest mortality occurs in the neonatal period and in the second and third mo of life.

Sakharov, A. D.
RADIOACTIVE CARBON FROM NUCLEAR EXPLOSIONS AND NON-THRESHOLD EFFECTS, tr. by Butler. May 59, 10p. 7 refs. M509.
Order from LC or SLA mi$1.80, ph$1.80 59-22558

Trans. of *Atomnaya Energiya (USSR) 1958, v. 4 [no. 6] p. 576-580.

In the explosion of all forms of nuclear weapon, including also the so-called "clean" (without fragments) hydrogen bomb, a huge quantity of neutrons falls into the atmosphere and reacts with the nitrogen in the air according to the relation $n + N^{14} \longrightarrow p + C^{14}$, with the formation of the long-lived radioactive isotope of carbon C^{14}. Radiocarbon will fall in human tissue and on disintegration induce radiation lesions, detectable with a dose of 7.5×10^{-4}r per megaton of explosive power. Human casualtities, caused by the formation of radiocarbon are numerically estimated from the following assumptions: (1) In the next millenium the number of mankind will amount to 30,000 million men, (2) irradiation of the reproductive glands with a 1-r. dose leads to hereditary disease in 10^{-4} cases, and (3) other nonthreshold biological effects will treble the number of victims. On these assumptions the total number of victims of radiocarbon from a megaton explosion will amount to 6,600 men. These victims are distributed over a period of the order of 8,000 years. As follows from the data of O. I. Leipunskii (Atomnaya Energiya 3: 12 and 530, 1957), the non-threshold biological effects, predetermined with radio-strontium and external irradiation with radio-cesium, increase the number of casualties by 1.5 times taking account of victims of our own and the next generations. The total number of victims of the nuclear experiments already carried out (with a power of 50 megatons) is estimated at 500,000 people. This is clearly an underestimate. It is impossible to exclude the fact that the full number of victims is already equal to 1 million people and will increase at a rate of 200-300 thousand people per year. (Author)

Shakhidzhanyan, L. G., Fleyshman, D. G. and others.
THE MEASUREMENT OF NATURAL RADIOACTIVITY IN HUMAN ORGANS [Izmereniye Yestestvennoy Radioaktivnosti v Organakh Chelovska]. [1960] 5p. 2 refs. (2 figs. omitted) NP-tr-315.
Order from LC or SLA mi$1.80, ph$1.80 60-15026

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 125, no. 1, p. 208-209.

Svetlov, P. G.
PROBLEMS OF INHERITED AND NON-INHERITED ONTOGENETIC DISTURBANCES PRODUCED BY THE ACTION OF RADIATION. 26 Jan 60, 15p. 24 refs. JPRS: L-1174-N.
Order from OTS $0.50 60-11201

Trans. of Akademiya Meditsinskikh Nauk SSSR. Vestnik, 1959, v. 14, no. 11, p. 29-37.

Zoology

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1959, NO. 1 (Soviet Abstracts. Biology). 1 Feb 60, 41p. JPRS: 2203-N.
Order from OTS $1.00 60-11248

Contents:
Section G. Zooparasitology. Abstracts 910-1054.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) (Soviet Abstracts. Biology).
Order from OTS $1.00

Contents:
Section P. General and Specialized Zoology. Insects.
1958, no. 19, Abstracts 87500-87753, JPRS: 2182-N, 60-11230
1958, no. 22, Abstracts 100652-100912, JPRS: 2262, 60-11308
1958, no. 23, Abstracts 105122-105413, JPRS: 2266, 60-11310
1959, no. 1, Abstracts 2121-2348, JPRS: 2175-N, 60-11224

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

STUDIES ON THE FAUNA OF CURACAO AND OTHER CARIBBEAN ISLANDS. [1959].
Available on loan from DI

Trans. of Natuurwetenschappelijke Studierkring voor Suriname en de Nederlandse Antillen, 1954-59, nos. 10, 12, 14, 17 and 19.

STUDIES ON THE FAUNA OF SURINAME AND OTHER GUYANAS. [1959].
Available on loan from DI

Trans. of Natuurwetenschappelijke Studiekring voor Suriname en de Nederlandse Antillen, 1957-59, nos. 16 and 18.

Faussone, Carla.
THE NUTRITION OF STARFISHES, tr. by Serhij Krascheninnikow. [1960].
Order from ANSP

Trans. of Natura [e Vita] (Italy) 1954, v. 14, no. 1, p. 15-28.

Gerbilsky, N. L.
BIOLOGICAL GROUPS AMOUNG THE KURA OSETR (ACIPENSER GULDENSTADTI PERSICUS BORODIN) AND THE BASIS FOR THEIR ARTIFICIAL CULTURE [Biologicheskie Gruppy Kurinskovo Osetra (Acipenser Güldenstädti persicus Borodin) i Osnovaniya dlya ikh zavodskovo Vosproyzvodstva] tr. by W. E. Ricker. 1959, 6p. 12 refs. Trans. series no. 212.
Order from NRCC NRCC C-2999

Trans. of Akademiya Nauk SSSR. Doklady, 1950, v. 71, no. 4, p. 785-788.

Mekhanik, F. Ya.
GROWTH AND METABOLISM OF LADOGA SALMON AND RAINBOW TROUT FRY UNDER DIFFERENT TEMPERATURES (Rost i Obmen Veshchestv u Mal'kov Ladozhskogo Lososya i Raduzhnoy Foreli pri Raznykh Temperaturakh). [1959] [16]p. (4 figs. [4 tables] omitted) 11 refs. M 537.
Order from LC or SLA mi$2.40, ph$3.30 59-22706

Trans. of Zool[ogicheskiy] Zh[urnal] (USSR) 1956, v. 35, no. 2, p. 290-299.

Semko, R. S.
ON THE CAUSES OF FLUCTUATIONS IN THE NUMBER OF PACIFIC SALMON AND THE TASKS IN THE RATIONAL USE OF STOCKS [O Prichinakh Kolebanii Chislennosti Tikhookeanskikh Lososey i Zadachi v Oblasti Ratsional'nogo Ispol'zovaniya Zapasov]. [1959] 44p. 3 refs.
Order from LC or SLA mi$3.30, ph$7.80 59-18359

Trans. of Akademiya Nauk SSSR. Ikhtiologicheskaya Komissiya. Trudy Soveshchanii, 1953, no. 1, p. 37-60 (also Trudy Vsesoyuznoy Konferentsii po Voprosam Rybnogo Khozyaystva, 1951).

Zenkevich, L. A.
ON THE AVAILABILITY OF FOOD TO FISH IN MARINE WATERS [Ob Obespechennosti ryb v Morskikh Vodoyemakh Kormovymi Resursami]. [1959] 18p. 13 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-18358

Trans. of Akademiya Nauk SSSR. Ikhtiologicheskaya Komissiya. Trudy Soveshchanii, 1953, no. 1, p. 529-537 (also Trudy Vsesoyuznoy Konferentsii po Voprosam Rybnogo Khozyatstva, 1951).

If there were surplus amounts of food in the sea fish would not concentrate in the places of accumulations of food items, and the constant occurrence of such concentration indicates that no surplus of food exists.

CHEMISTRY

BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. DIVISION OF CHEMICAL SCIENCE, 1959, NO. 2, P. 173-354. 1960, 1v.
Order from CB$5.00, $45.00/year

Trans. of Akademiya Nauk SSSR. Otdeleniye Khimicheskikh Nauk. Izvestiya, 1959, no. 2, p. [185-[373]].

JOURNAL OF GENERAL CHEMISTRY OF THE USSR, 1959, VOL. 29, NO. 1, P. 1-347. 1960, 1v.
Order from CB $10.00, $90.00/year

Trans. of Zhurnal Obshchey Khimii (USSR) 1959, v. 29, no. 1, p. 1-[340].

POLYOLEFINS: ZIEGLER, MONTECATINI & OTHERS. [1959] [6]p.
Order from RIS RIS Bulletin 183

Abstracts of trans. of Belgian, Italian and German patent literature and articles.

*ZHURNAL OBSHCHEY KHIMII (USSR) 1959, V. 29, NO. 11, P. 3513-3853 (Journal of General Chemistry). [1960] 1v. SOV-79-29-11-(1-81)/81.
Order from OTS $1.40, $7.50/6 mo. PB 141 075T-24
Foreign $1.65, $9.00/6 mo.

Consists of abstracts in English.

Semenov, Nikolai Nikolayevich.
SOME PROBLEMS IN CHEMICAL KINETICS AND REACTIVITY, tr. by Michel Boudart. [1959] 2v.
Avialable on loan from DI

Trans. of mono. O Nekotorykh Problemakh Khimicheskoy Kinetiki i Reaktsionnoy Stosobnosti, 2d ed. 1958/59.

Shirmazan, M. G. and Dyatkina, M. E.
AN INVESTIGATION IN THE FIELD OF DIRECTED VALENCES. PT. 2. DIRECTIONS AND MAXIMUM VALUES OF HYBRID FUNCTIONS FOR COORDINATION NUMBERS 5, 6, 7, 8, AND 9. [1959].
Order from ATS ATS-28L37R

Trans. of *Akad[emiya] Nauk SSR. Otdel[eniye] Khim[icheskikh Nauk. Izvest[iya] 1959, no. 10, p. 1751-1759.

Strel'tsov, V. V. and Komarovskiy, A. A.
MASS TRANSFER FROM A FIXED GRANULAR BED TO A LIQUID STREAM. [1959] 7p.
Order from ATS $8.95 ATS-33L36R

Trans. of Khim[icheskaya] Nauka i Prom[yshlennost'] (USSR) 1958, v. 3, no. 4, p. 511-514.

Analytical Chemistry

Babko, A. K., Kleyner, K. Ye., and Markova, L. V.
THE SULFUR METHOD OF DETERMINING OXYGEN (OXIDES) IN METALS. I. DETERMINATION OF OXYGEN IN THE OXIDES OF IRON, MANGANESE, COBALT, NICKEL, ARSENIC, LEAD, CADMIUM, ANTIMONY AND COPPER. 22 Jan 60, 10p. (4 figs. omitted) 8 refs. JPRS: L-1012-D.
Order from OTS $0.50 59-11632

Trans. of Zavodskaya Laboratoriya (USSR) 1956, v. 22, no. 6, p. 640-645.

Garbers, C. F., Schmidt, H., and Karrer, P.
MODIFICATION OF THE METHOD FOR DETERMINING C-METHYL, USING MINIMAL AMOUNTS OF SUBSTANCE. [1959] 4p. 8 refs.
Order from SLA mi$1.80, ph$1.80 60-14124

Trans. of Helv[etica] Chim[ica] Acta (Switzerland) 1954, v. 37 [no. 4] p. 1336-1338.

The acetic acid produced during the oxidation is determined by paper chromatography. It is possible to determine about 50γ acetic acid quite accurately; so that 0.2 to 0.4 mg of substance are sufficient for the C-CH_3 determination. All the vessels and reagents (particularly the chrome trioxide) must be cleaned in such a way that the blind values of the determinations come out as low as possible. They should not be greater than about 5γ acetic acid, which can be achieved easily by exerting some care.

Iwasaki, I. and others.
THE COLORIMETRIC ESTIMATION OF TRACES OF THE SULPHATE ION. [1960].
Order from BISI £2 BISITS 1577

Trans. of [Nihon Kagaku Zasshi] (Japan) 1953, v. 74, p. 400-401.

Iwayama, Yoji.
NEW COLORIMETRIC DETERMINATION OF HIGHER FATTY ACIDS. [1959] 7p. (1 fig. omitted) 9 refs.
Order from SLA mi$1.80, ph$1.80 60-14094

Trans. of [Yakugaku Zasshi] (Japan) 1959, v. 79, no. 4, p. 552-554.

Karwell, J.
RECENT VIEWS ON THE CHEMICAL CONSTITUTION OF COAL (Neuere Anschauungen über [die] Chemische Konstitution von Steinkohle). [1959] 10p.
Order from SLA mi$1.80, ph$1.80 60-14031

Trans. of Glückauf (West Germany) 1958, v. 94, no. 3/4, p. 125-128.

Results of infrared and electron resonance spectrometric analysis of coal are reported.

Meyer, S. and Koch, O. G.
A SOLUTION MICROTECHNIQUE FOR THE SPECTROCHEMICAL ANALYSIS OF OXIDE INCLUSIONS IN STEELS. [1960].
Order from BISI £2 5s BISITS 1569

Trans. of Spectrochimica Acta (Gt. Brit.) 1959, no. 8, p. 549-556.

A solution microtechnique for the spectrochemical analysis of oxide inclusions in steels is described. A sample of about 100-500μg is fused with a flux mixture of sodium carbonate-potassium carbonate-borax, the melt dissolved in a hydrochloric acid solution of cobalt nitrate (internal standard) and citric acid, and the solution made up to known volume by means of a pipette. An aliquot of 20μg is put on a preheated graphite electrode and a high voltage spark discharge is used. SiO_2, Al_2O_3, FeO, MnO, Cr_2O_3, CaO, MgO and CuO are determined with a deviation from the mean of ±5.5%. The time required for complete analysis is about 55 mins. (Author)

Pestemer, M.
PURIFICATION OF SOLVENTS FOR SPECTROSCOPIC PURPOSES, PT. II. [1959] 5p. 24 refs.
Order from SLA mi$1.80, ph$1.80 60-14052

Trans. of Angewandte Chemie (West Germany) 1955, v. 67, no. 23, p. 740-741.

Purification instructions for n-heptane, isopentane, 3-methyl pentane, methyl cyclohexane, chloroform, ethanol, diethylether, acetic acid ethyl ester, pyridine, and aniline are surveyed and the transmission range of various substances between 15 and 25μ are given.

Inorganic Chemistry

Filonenko, N. E. and Lavrov, I. V.
CALCIUM HEXALUMINATE IN THE SYSTEM $CaO-A2_2O_3-SiO_2$ (Geksaalyuminat Izvesti v Sisteme $CaO-A2_2O_3-SiO_2$) tr. by G. N. Gibson. May 51 [6]p. 3 refs. Library Communication no. 559; T/L 801; M 1009.
Order from LC or SLA mi$1.80, ph$1.80 60-13712

Trans. of Akademiya Nauk SSSR. Doklady, 1949, v. 66, no. 4, p. 673-676.

More than 200 thermal analyses, with following examination of the quenched specimens under the microscope, were carried out. In the investigated zone of the ternary mixes the precipitation of three crystalline phases, corundum, $CaO.6Al_2O_3$, and $CaO.2Al_2O_3$ was observed. Corundum alumina crystallises in the trigonal system and is precipitated from the melt in the form of equant crystals represented by a combination of rhombohedron and basal pinacoid. The optical properties of corundum are $N_o = 1.768$, $N_e = 1.760$, $N_o = N_e = 0.008$. Calcium hexaluminate ($CaO.6Al_2O_3$) crystallises in a hexagonal system and is precipitated from the melt in the form of hexagonal plates representing a combination of basal pinacoid and bipyramid. The optical properties of $CaO.6Al_2O_3$ are $N_o = 1.759$, $N_e = 1.762$, $N_o - N_e = 0.007$. $CaO.2Al_2O_3$ is precipitated from the melt in the form of grains and plates, the optical properties of which coincide with those of Wright[2]: $N_e = 1.652$, $N_o = 1.617$, $N_e - N_o = 0.035$. The invariant point at which corundum, $CaO.6Al_2O_3$ and anorthite exist in equilibrium with liquid and vapour has the following composition: Al_2O_3, 41.0±0.5%; SiO_2, 36.0±0.5%; CaO, 23.0±0.5%; melting point 1495°±5° C. A concentration-temperature diagram of the equilibrium of the angle Al_2O_3 of the ternary system $CaO-Al_2O_3-SiO_2$ was constructed which shows that the zone $CaO.6Al_2O_3$ is contiguous with the zones of stability of corundum, anorthite, gehlenite and $CaO.2Al_2O_3$. The boundary curves between the zones of corundum, $CaO-6Al_2O_3$ and anorthite concide in the invariant point melting at 1495°C. $CaO.6Al_2O_3$ on fusion decomposes into corundum and liquid; its composition point is in the zone of corundum. The reaction $CaO.6Al_2O_3 \rightleftarrows$ corundum + melt takes place at definite concentrations (along the boundary curve) in the temperature interval 1500° to 1850°C.

Fyalkov, Zh. A. and Sheka, Z. A.
FORMATION DE COMPLEXES DANS LES SOLUTIONS AQUEUSES DE L'ACIDE SULFURIQUE ET DES SULFATES DE CERTAINS METAUX [Complex Formation in Aqueous Solution of Sulfuric Acid and Some Metal Sulfates] tr. by Masour. 5 June 59 [17]p. 13 refs. Trans. no. R 399 (text in French).
Order from LC or SLA mi$2.40, ph$3.30 CEA-tr-R399

Trans. in French of Zh[urnal] Neorg[anicheskoy] Khim[ii] (USSR) 1956 [v. 1] no. 6, p. 1238-1242.

The method of determination of the electrical conductivity was used to study complex formation in aqueous solutions of sulfuric acid and of the sulfates of copper, nickel, cobalt, and zinc, as well as in solutions containing sulfates of zinc and cobalt.

Morozov, I. S., and Stefanyuk, S. L.
KINETICS OF CHLORINATION OF TITANIUM DIOXIDE AND NIOBIUM PENTOXIDE (O Kinetike Khlorirovaniya Dvuokisi Titana i Pyatiokisi Niobiya). Dec 59, 17p. 6 refs. RTS no. 1231.
Order from LC or SLA mi$2.40, ph$3.30 60-13436

Trans. of Zhurnal Neorganicheskoy Khimii (USSR) 1958, v. 3, no. 10, p. 2366-2374.
Another translation is available from RIS $30.00, 12 June 59, as R-762.

A method for the study of kinetics of chlorination is given. The variation of the rate of chlorination of titanium oxide and of niobium oxide, mixed with carbon, with temperature, pellet size, linear velocity and partial pressure of chlorine has been determined. (Author's conclusions)

Shchukaryev, S. A., Vasilkova, I. V. and others.
DETERMINATION OF THE SATURATED VAPOR PRESSURE OF UCl_4 AND THE DISPROPORTIONATION PRESSURE OF $UOCl_2$. [1960] 13p. 9 refs.
Order from LC or SLA mi$2. 40, ph$3. 30 AEC-tr-3870

Trans. of Zhurnal Neorgan[icheskoy] Khim[ii] (USSR) 1956, v. 1, p. 2272-2277.

The knudsen method was used to determine the saturated vapor pressure of UCl_4 and the equilibrium vapor pressure of UCl_4 as obtained as a result of separation of $UOCl_2$ according to the reaction: $2UOCl_2 \rightleftharpoons UO_2 + (UCl_4)$ gas. The data of D. Katz and E. Rabinovich (The Chemistry of Uranium, part I, Moscow, 1954) on the saturated vapor pressure of solid UCl_4 were experimentally verified in the temperature interval of 358 to 435°C. The disproportionation pressure of $UOCl_2$ was determined in the temperature interval 425 to 542°C.

Solomin, N. V. and Potemkina, L. V.
CHEMICAL COMPOUNDS IN FUSIONS OF ALKALI BORATES AND THEIR VOLATILITY, tr. by Lydia Venters. Oct 59, 6p. 4 refs.
Order from LC or SLA mi$1. 80, ph$1. 80 AEC-tr-3879

Trans. of Akademiya Nauk SSSR. Doklady, 1954, v. 96, no. 1, p. 91-93.

Alkali borates of the form $R_2O \cdot 2B_2O_3$, $R_2O \cdot B_2O_3$ and $2R_2O \cdot B_2O_3$ were investigated. The content of the alkaline oxide for each system amounted to 33. 3, 50 and 66. 7 mole % respectively. For Li, Na and K borates the volatility and vapor composition were determined, but for Rb borates only the volatility was. Tabulated results indicate that in the fusions of the system $Li_2O - B_2O_3$ metaborate and diborate, which evaporate almost with no decomposition, are relatively stable compounds at 1400°, but orthoborate decomposes, while the content of the vapor is analogous to that of a metaborate. In the fusions of the system $Na_2O - B_2O_3$ metaborate is the stablest compound. It evaporates practically with no decomposition, even at 1400°, which is higher than its melting point by 430°. Sodium diborate decomposes partly; at 1200° the decomposition is slight, but at 1400° the vapor contains more than 30% metaborate.

Vagina, N. S.
SEPARATION OF THE YTTRIUM GROUP INTO SUB-GROUPS ON THE BASIS OF A COMPLEX FORMER, tr. by A. L. Monks. 2 Mar 59, 12p. 14 refs.
Order from LC or SLA mi$2. 40, ph$3. 30 AEC-tr-3600

Trans. of Zhurn[al] Neorgan[icheskoy] Khim[ii] (USSR) 1957, v. 2, p. 1522-1527.

An almost neutral solution of chlorides of the yttrium group, the titration and composition of which were known, was added upon mixing to a solution of ammonium salt of ethylene diamine tetra acidic acid. The amount of the latter was precisely calculated for the complex formation of the last five elements (Lu, Yb, Tu, Er, Ho). The maximum concentration was 2g R_2O_3 in a 5 ml solution. The mixture was heated to boiling by constant mixing for 10 minutes, was cooled and the amount of the cationite or precipitate was introduced and calculated for rare earth elements, "not bound in the complex", energetically mixed for 30 minutes and filtrated. The solution was evaporated to the dry state and the oxalates of the rare earth elements were precipitated with a 10% solution of oxalic acid. The precipitate obtained by working with the organic precipitating agents was dried and calcinated to oxides at a temperature of 800 to 900°. In using a cationite, desorption was carried out by a 2N hydrochloric acid. The composition of the obtained compounds was analyzed by the X-ray spectral method; the distribution of certain of the lanthanides was also controlled using radioactive indicators for β-irradiation (Y^{91}, 61 days; Er^{169}, 9. 4 days; Ho^{166}, 27 hours). A change in the solution acidity within the pH interval 2 to 4. 7 does not have an essential effect on the separation efficiency. Similar to a "diffusion" europium, gadolinium and turbium which takes place when a separation into the cerium and yttrium groups is made, holmium and erbium also occupy a position of "transitional" elements when the method is used.

Organic Chemistry

PROCESS FOR CONTINUOUS PRODUCTION OF CONDENSED PHOSPHATES, ESPECIALLY ALKYL POLYPHOSPHATES. Feb 60, 5p.
Order from RIS $10.75 RIS rept. 97054

Trans. of German patent application C 15 524 (12i, 31) DAS 1 059 894, filed 25 Sep 56, pub. 25 June 59, by Chemische Fabrik Kalk G.m.b.H., Cologne-Kalk.

Barabanov, N. L., Tyuryayev, I. Ya., and Mukhina, T. N.
REACTION RATES IN THE PYROLYSIS OF ETHANE. [1959] 5p.
Order from ATS $7.50 ATS-37L37R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1959, v. 4, no. 8, p. 19-22.

Danusso, F., Moraglio, G. and others.
VOLUMETRIC AND DILATOMETRIC PROPERTIES OF SOME OLEFIN POLYMERS. [1959] [23]p. 29 refs.
Order from SLA mi$2.70, ph$4.80 60-14218

Trans. of [la] Chimica e l'Industria (Italy) 1959, v. 41, no. 8, p. 748-757.

The specific volumes of samples of highly linear polyethylene, of polypropylene, polybutylene, and polystyrene having an atactic, isotactic, or isotactic stereoblock structure, were determined over a wide temperature range. From the experimental results were observed typical effects of the macromolecular

structure on the volumetric or dilatometric structure and on the behavior corresponding to phase, or isophase transitions of the polymers studied were observed. The dilatometric linear relations attributable to the pure crystalline phase were calculated for each of the polymer systems. In addition to the data gleaned directly from the experiment, the values of other quantities of thermodynamic interest that are useful in technical calculations were deduced. The development of a method for the determination of the degree of crystallinity of polymers belonging to the systems examined is shown. (Authors' abstract)

Dil'man, T. A., Polyakova, K. S., and Belov, V. N.
INTERMEDIATES IN THE SYNTHESIS OF AROMATIC MATERIALS. PT. 7. PREPARATION OF MONOALKYL SUBSTITUTED ACETOACETIC ESTERS. [1959] 3p.
Order from ATS $4.75 ATS-73L34R

Trans. of Vsesoyuz[nyy] Nauch[no]-Issledovatel['skiy] Inst[itut] Sintetich[eskikh] i Natural'nykh Dushistykh Veshchestv. Trudy (USSR) 1958, no. 4, p. 25-27.

Freydlin, L. Kh. and Polkovnikov, B. D.
IRREVERSIBLE CATALYSIS AND THE CONSECUTIVE CHARACTER OF THE HYDROGENATION OF UNSATURATED BONDS IN 1,3-CYCLOHEXADIENE ON A SKELETAL NICKEL CATALYST [Neobratimyy Kataliz i Posledovatel'nost' Gidrirovaniya Nepredel'nykh Svyazey Tsiklogeksadiyena-1,3 na Skeletnom Nikelevom Katalizatore]. [1959] 7p.
Order from ATS $8.00 ATS-03L37R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1959, no. 4, p. 721-726.

Frunze, T. M., Korshak, V. V., and Kurashev, V. V.
ORGANOPHOSPHORUS POLYMERS. VI. POLYAMIDES OF SOME PHOSPHORUS-CONTAINING DICARBOXYLIC ACIDS. [1959] 8p.
Order from ATS $12.40 ATS-32L37R

Trans. of Vysokomol[ekulyarnyye] Soyedineniya (USSR) 1959, v. 1, no. 5, p. 670-676.

Frunze, T. M., Korshak, V. V., and others.
ORGANOPHOSPHORUS POLYMERS. VII. MIXED PHOSPHORUS-CONTAINING POLYAMIDES. [1959] 5p.
Order from ATS $8.50 ATS-34L37R

Trans. of Vysokomo[ekulyarnyye] Soyedineniya (USSR) 1959, v. 1, no. 5, p. 677-681.

Goncharova, N. V., Krivozubova, N. V. and others.
MANUFACTURE OF PRODUCTS WITH A HIGH CONTENT OF AROMATIC HYDROCARBONS BY A HYDROGENATION METHOD [Polucheniye Produktov s Vysokim Soderzhaniyem Aromaticheskikh Uglevodorodov Metodom Gidrogenizatsii]. [1959] 9p.
Order from ATS $11.85 ATS-42L36R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1958, v. 3, no. 12, p. 15-21.

Havel, S.
APPLICATIONS OF ORGANIC PERACIDS. [1959] 14p.
Order from ATS $22.95 ATS-24L37C

Trans. of Chem[icke] Listy (Czechoslovakia) 1959, v. 53, p. 928-940.

Kargin, V. A., Kabanov, V. A., and Zubov, V. P.
POLYMERIZATION IN SYSTEMS OBTAINED BY THE METHOD OF MOLECULAR BEAMS. [1959] 4p.
Order from ATS $8.35 ATS-26L36R

Trans. of Vysokomolekulyarnyye Soyedineniya (USSR) 1959, v. 1, no. 2, p. 265-268.

Knunyants, I. L., Sterlin, R. N. and others.
FLUORO-OLEFIN REACTIONS 8; THE REACTIONS OF PERFLUORO-VINYL MAGNESIUM HALIDES (Reaktsiy Ftorolefinov. Soobshcheniye 8; Reaktsiy Perftorvinilmagniigalogenidov) tr. by J. W. Palmer. Apr 59 [6]p. 10 refs. Library Trans. no. 815; M 475.
Order from LC or SLA mi$1.80, ph$1.80 59-22538

Trans. of *Akademiya Nauk [SSSR]. Otdeleniye Khimicheskikh Nauk. Izvestiya, 1958, no. 11, p. 1345-1347. Other translations are available from LC or SLA mi$1.80, ph$1.80 as 60-10947, 9 Sep 59, 4p. and from ATS $6.80 as ATS-90L29R [1959] 4p.

By activating magnesium with ethyl bromide and performing the reactions in ether at -30° to -20°, a quantitative expenditure of magnesium can be obtained. On decomposing the reaction mass with dilute sulfuric acid, trifluoroethylene was isolated in 70% yield. Under these conditions, perfluorovinyl bromide and perfluorovinyl chloride did not react with magnesium and were recovered unchanged. Perfluorovinyl bromide was converted into its Grignard derivative $CF_2=CFMgBr$, with a yield of 43.4% by using a tetrahydrofuran medium. It was not necessary to activate the magnesium by ethyl bromide. To demonstrate the statement by R. Haseldine (J. Chem. Soc. 1952: 3423) that an increase in basicity of the solvent furthers the formation of R_FMgI as a result of its stabilization in a form of a complex of the type

$$R_2O \rightarrow R_FMgI \leftarrow R_2O,$$

$CF_2=CFMgI$ was treated with frozen carbon dioxide in an ether solution at -40° and the reaction mass was decomposed with 2N sulfuric acid. Perfluoracrylic acid was obtained in a 37.7% yield. The methyl ester of perfluoracrylic acid was obtained by treating an ether solution of the acid with a calculated amount of diazomethane.

Kryukov, S. I., Kut'in, A. M. and others.
AN IMPROVED METHOD OF SYNTHESIS OF TRI-

ETHYLALUMINIUM (Uluchshennyy Sposob Sinteza Trietilalyuminiya). Jan 60, 9p. 12 refs. RTS no. 1268.
Order from LC or SLA mi$1.80, ph$1.80 60-13477

Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Khimiya i Khimicheskaya Tekhnologiya (USSR) 1958, no. 1, p. 86-93.
Other translations are available from ATS $17.50 as ATS-19L35R [1959] 9p. and from LC or SLA mi$2.40, ph$3.30 as 59-22619, Misc. Lit. 3000, 12 June 59, 12p.

Kryukov, S. I., Kut'in, A. M. and others.
IMPROVED METHOD OF TRIETHYL ALUMINIUM PRODUCTION [Uluchshennyy Sposob Sintexa Trietilalyuminiya] tr. by I. Gawronska. 12 June 59, 12p. 13 refs. Misc. Lit. 3000; M 633.
Order from LC or SLA mi$2.40, ph$3.30 59-22619

Trans. of Izv[vestiya] Vyssh[ikh] Uch[ebnykh] Zav[edeniy]. [Khimiya i Khimicheskaya Tekhnologiya] (USSR) 1958, no. 1, p. 86-93.
Another translation is available from ATS $17.50 as ATS-19L35R [1959] 9p.

In order to work out a technical method of triethylaluminum synthesis from ethyl chloride and aluminum the method of Grosse and Mavity (J. Org. Chem. 5: 106, 1940) was checked and essentially modified. In the first stage of the process (the preparation of the equimolecular mixture of ethyl aluminum dichloride and diethyl aluminum chloride - ethyl aluminum sesquichloride) the reaction is carried out at normal pressure in the presence of an initiator, ethyl bromide. In the second stage (symmetrization of ethyl aluminum sesquichloride by means of metallic sodium) the method using the dispersion of sodium in hydrocarbon solvent is proposed. These modifications make it possible to obtain a quantitative yield of ethyl aluminum sesquichloride and a 70 to 75% yield of triethyl aluminum.

Kunichika, S. and Oka, S.
THE BIMOLECULAR CONDENSATION OF ACETYLENIC COMPOUNDS BY OXIDATION. [1959] 10p.
Order from ATS $14.00 ATS-90L36J

Trans. of Kogyo Kagaku Zasshi (Japan) 1958, v. 61, no. 1, p. 13-16.

Lavrovskiy, K. P., Fish, Yu. L., and Naymushin, N. N.
CATALYTIC CRACKING OF CYCLIC HYDROCARBONS UNDER PRESSURE. [1959] 24p.
Order from ATS $29.85 ATS-53L36R

Trans. of Akad[emiya] Nauk SSSR. Inst[itut] Nefti. Trudy, 1952, v. 2, p. 110-132.

Lozovoy, A. V. and Senyavin, S. A.
DECOMPOSITION RATES OF HYDROCARBONS IN DESTRUCTIVE HYDROGENATION, PT. III. [1959] 8p.
Order from ATS $14.75 ATS-55L36R

Trans. of Zhur[nal] Priklad[noy] Khim[ii] (USSR) 1945, v. 18, no. 1/2, p. 43-49.

Lozovoy, A. V.
THE RATE OF HYDROGENATION OF AROMATIC HYDROCARBONS. V. POLYNUCLEAR AROMATIC HYDROCARBONS. [1959] 15p.
Order from ATS $16.95 ATS-73L36R

Trans of Zhur[nal] Obshchey Khim[ii] (USSR) 1940, v. 10 [72] no. 21, p. 1843-1854.

Mikhaylov, B. M. and Shchegoleva, T. A.
THE SYNTHESIS OF DI(ALKYLTHIO)BORANES AND TRI(ALKYLTHIO) BORATES. [1959] 1p.
Order from ATS $2.50 ATS-56M37R

Trans. of *Akad[emiya] Nauk SSSR. Otdel[eniye] Khim[icheskikh] Nauk. Izvest[iya] 1959, no. 10, p. 1868.

Moraglio, G.
ON THE MOLECULAR WEIGHT DETERMINATION OF POLYPROPYLENE. [1959] [7]p. 10 refs.
Order from SLA mi$1.80, ph$1.80 60-14215

Trans. of [Ia] Chimica el'Industria (Italy) 1959, v. 41, no. 9, p. 879-881.

Natta, G., Mazzanti, G. and others.
COPOLYMERIZATION OF ETHYLENE WITH ALIPHATIC ALPHA-OLEFINS. VI. COPOLYMERIZATION OF ETHYLENE WITH 1-BUTENE. [1959] [28]p. 11 refs.
Order from SLA mi$2.70, ph$4.80 60-14212

Trans. of [Ia] Chimica e l'Industria (Italy) 1959, v. 41, no. 8, p. 764-775.
Another translation is available from SLA mi$3.00, ph$6.30 as 60-10901, 24 Nov 59 [34]p.

Linear copolymers of high molecular weight have been prepared from ethylene and 1-butene under appropriate experimental conditions and by the use of catalysts prepared from vanadium halides and aluminum trialkyls. The products are free of homopolymers and amorphous as shown by X-ray examination. A study was made of the influence on copolymer composition of the conditions used during copolymerization and in the preparation of the catalyst, and the reactivity ratios of ethylene and 1-butene have been determined. These reactivity ratios have then been compared with those found for the copolymerization of ethylene and propylene in the presence of the same catalysts. (Author) (See also 59-12669, 59-15642, 59-17265)

Natta, G., Danusso, F. and others.
STEREOSPECIFIC POLYMERIZATION OF VINYL AROMATIC MONOMERS. IV. REACTIVITY OF THE MONOMERS IN THE OVERALL PROCESS. [1959] [20]p. 14 refs.
Order from SLA mi$2.40, ph$3.30 60-14211

Trans. of [Ia] Chimica e l'Industria (Italy) 1959, v. 41, no. 10, p. 968-974.

The reactivity of a wide range of vinyl aromatic monomers is determined in the overall process of stereospecific polymerization, carried out at 60°C, with catalysts prepared from $TiCl_4$ and $AlEt_3$. The results are discussed on the basis of the influence, steric and polar, exerted by the substituent of the vinyl group. The reactivities are influenced especially by factors of a steric nature. In many cases, in which this influence is negligible, the reactivity increases regularly with an increase of the electron density at the double bond of the monomer. Other interesting relations between reactivity and the type of substituent are also shown. (Author's abstract) (See also 60-10599)

Popov, M. A. and Shuykin, N. I.
REDUCTIVE CATALYTIC AMINATION OF KETONES. [1959] [5]p. 17 refs. TL 888; M 214.
Order from LC or SLA mi$1.80, ph$1.80 59-19107

Trans. of [Akademiya Nauk SSSR. Otdeleniye Khimicheskikh Nauk. Izvestiya] 1951, no. 2, p. 140-144.

By the action of hydrogen and ammonia on acetone at 240° or on cyclohexanone at 200° in the vapour phase at ordinary pressure in the presence of platinised silica gel the corresponding primary amines are formed in considerable quantity.

Takasago, S. and Oishi, K.
DESULFURIZATION OF PHENOL. [1959] 4p.
Order from ATS $9.25 ATS-42L37J

Trans. of Japanese patent 2969 (1959) pub. 24 Apr 59, filed 10 Feb 56 (pat. appl. no. 3204 (1956) by T. Kuwata and S. Takumi.

Tishchenko, D. V. and Churbakov, A.
STUDIES IN THE FIELD OF CHLORO DERIVATIVES OF HYDROCARBONS OF THE ALIPHATIC SERIES. III. CHLORINATION OF 1,2- AND 2,3-DICHLOROBUTANES. [1959] 9p.
Order from ATS $16.40 ATS-36L37R

Trans. of Zhur[nal] Obshchey Khim[ii] (USSR) 1936, v. 6, no. 10, p. 1553-1558.

Turova-Polyak, M. B. and Lyubimova, N. B.
CRACKING OF TETRAHYDRONAPHTHALENE WITH ALUMINUM CHLORIDE. [1959] 6p.
Order from ATS $7.95 ATS-54L36R

Trans. of Zhur[nal] Obshchey Khim[ii] (USSR) 1938, v. 8, no. 6, p. 538-543.

Vinogradova, S. V., Korshak, V. V., and others.
HETERO-CHAIN POLYESTERS. XVII. POLYESTERS OF PHOSPHORUS-CONTAINING DICARBOXYLIC ACIDS. [1959] 5p.
Order from ATS $7.85 ATS-33L37R

Trans. of Vysokomol[ekulyarnyye] Soyedineniya (USSR) 1959, v. 1, no. 3, p. 357-361.

Wang, Pao-jen.
SUMMARY OF ACCOMPLISHMENTS IN RESEARCH IN POLYMER CHEMISTRY IN THE PAST DECADE. 20 Jan 60, 8p. JPRS: 2164-N.
Order from OTS $0.50 60-11212

Trans. of Kao Fen Tzu T'ung Hsun (Chinese People's Republic) 1959, v. 3, no. 5, p. 193-195.

Woodward, R. B.
RECENT DEVELOPMENTS IN THE CHEMISTRY OF NATURAL SUBSTANCES. [1959] 15p. (59 diagr. omitted) 18 refs.
Order from SLA mi$2.40, ph$3.30 60-14043

Partial trans. (p. 13-18) of Angew[andte] Chem[ie] (West Germany) 1956, v. 68, no. 1, p. 13-[20].

Yashunskiy, V. G.
SUBSTANCES WITH COMPLEX FORMATION CAPACITY. II. Trans - 1,2- DIAMINOCYCLOPENTANE - N, N, N', N' - TETRA-ACETIC ACID AND TRANS -1,2-DIAMINOCYCLOBUTANE-N, N, N', N', TETRA-ACETIC ACID. Mar 59 [8]p. 4 refs. Trans. U76; M486.
Order from LC or SLA mi$1.80, ph$1.80 59-22547

Trans. of *Zh[urnal] Obshch[ey] Khim[ii] (USSR) 1958, v. 28 [no. 4] p. 1056-1059.

Yur'yev, Yu. K., Novitskiy, K. Yu., and Zhingareva, V. N.
INQUIRIES INTO THE FURAN SERIES; THE SYNTHESIS OF SYMMETRIC 2,5-BIS-(DIALKYLAMINOMETHYL)-FURANS [Issledovaniye Ryadu Furana. Sintez Simmetrichnykh 2,5-bis-(Dialkilaminometil)-Furanov]. 16 Nov 59, 4p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 60-14016

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 126, no. 4, p. 806-808.

Zieborak, K.
QUATERNARY AZEOTROPIC MIXTURES OF PARAFFINIC AND NAPHTHENIC HYDROCARBONS WITH BENZENE, ETHANOL AND WATER, PT. 7. [1959] 3p.
Order from ATS $5.50 ATS-63L35P

Trans. of Roczniki Chem[ii] (Poland) 1951, v. 25, p. 388-391.

Physical Chemistry

Basyrov, Z. B. and Mikhedov, V. G.
DETONATING ABILITY OF MIXTURES OF ACETYLENE AND OILS WITH LIQUID OXYGEN. [1959] 8p.
Order from ATS $15.50 ATS-57M37R

Trans. of Kislorod (USSR) 1959, v. 12, no. 5, p. 1-6.

Chenouard, J., Gueron, J., and Roth, E.
ANALYSIS OF HYDROGEN-DEUTERIUM MIXTURES, AND HEAVY-AND ORDINARY-WATER MIXTURES, BY MEANS OF A MASS SPECTROMETER. [1959] [35]p. 28 refs.
Order from LC or SLA mi$3.00, ph$6.30 AEC-tr-1274

Trans. of [Commissariat a l'Energie Atomique. Rapport] (France) 1951, no. 87.

The object of this paper is to describe and discuss the method used for more than a year in our laboratory to make up heavy waters. Having brought to mind the principle of the analysis of mixtures of deuterium and hydrogen by means of a mass spectrometer, we discuss the precision of the results, and after we show you, from the analysis of these mixtures, how one may deduct the isotopic composition of one lot of water. The method of equilibrium is described in detail. To end with we compare briefly the precision of analyses by mass spectrometry with that of analyses obtained by other methods. At the end there are some calculations as well as tables of results. (Author)

Chentsov, R.
STRATIFICATION OF SOLUTIONS OF LIQUID HELIUM ISOTOPES AT VERY LOW TEMPERATURES. [1959] 3p. 5 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3683

Trans. of Uspekhi Fiz[icheskikh] Nauk (USSR) 1958, v. 64, no. 1, p. 195-196.

A survey.

Chudinov, Ye. G. and Choporov, D. Ya.
HEATS OF SUBLIMATION OF TETRAFLUORIDES OF URANIUM, NEPTUNIUM, PLUTONIUM AND AMERICIUM, tr. by Helen J. Chick. [1960] 3p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3871

Trans. of unidentified mono. [Teploty Sublimatsii Tetraftoridov Urana, Neptuniya, Plutoniya i Ameritsiya]

Substance	Temperature Interval in °C	Heat of Sublimation ΔH_T°	Entropy of Sublimation ΔS_T
ThF_4	782-1024	77.1	41.9
UF_4	555-953	64.5	39.5
NpF_4	613-818	71.8	46.2
PuF_4	500-851	68.0	46.2
AmF_4	385-640	49.8	22.2

Collongues, Robert and Stöcker, Jochen.
CONCERNING THE STABILITY AND THE MECHANISM OF DECOMPOSITION OF CUBIC SOLID SOLUTIONS OF ZIRCONIA. 23 Dec 59, 3p. 5 refs.
Order from SLA mi$1.80, ph$1.80 60-10999

Trans. of [Academie des Sciences, Paris.] Comp[es] Rend[us] (France) 1958, v. 246 [no. 26] p. 3641-3644.

Furman, M. S., Shestakova, A. D. and others.
OXIDATION OF n-BUTANE IN ACETIC ACID SOLUTION WITH AIR UNDER PRESSURE [Okisleniye n-Butana v Rastvore Uksusnoy Kisloty Vozdukhom pod Davleniyem]. [1959] 3p.
Order from ATS $5.00 ATS-44L37R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1959, v. 124, no. 5, p. 1083-1084.

Gladkova, Ye. N. and Natanson, G. L.
METHODS OF MEASURING THE SIZE OF MONODISPERSE FOG PARTICLES WITH A RADIUS OF 0.1-0.5 MICRONS. 19 Feb 59, 5p. 5 refs. JPRS: L-648-N.
Order from OTS $0.50 59-13213

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1958, v. 32, no. 5, p. 1160-1162.

Gurenkov, B. S.
ADSORPTION POTENTIAL OF CONCENTRATED SOLUTIONS OF INORGANIC ACIDS, tr. by Elmar Jarvesoo. May 57 [14]p. 26 refs. T-41; M. 174.
Order from LC or SLA mi$2.40, ph$3.30 59-19070

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1956, v. 30, p. 1830-1839.

Adsorption potentials in concentrated solutions of hydrochloric acid (up to 15.81 M), hydrobromic acid (up to 10.12 M) and sulphuric acid at the interface with air were measured by F. B. Kenrick's vertical-stream method (Z. physik. Chem. 19: 625, 1896). Based on electrocapillary measurements, adsorption potentials at the interface with mercury in solutions of hydrobromic acid within the range of concentrations 1.01 to 6.0 M and in solutions of hydrochloric acid within the range of concentration 0.20 to 15.5 M were determined. By using the method of maximum bubble

pressure, the surface tension of solutions of hydrochloric acid was measured for concentrations of from 2. 37 to 15. 40 M. Measurements of adsorption potentials showed that in sufficiently concentrated solutions the potentials appearing at the free surface of the solution are of the same order as at the interface with mercury. Adsorption of the chloride anion, and even more so that of Br^-, is more strongly pronounced at the interface with mercury than at the free surface. However, even in this case with some increase in the concentration of the solution the same adsorption potentials can be obtained at the free surface of solutions as at the interface with mercury. In the case of concentrated solutions of the inorganic acids studied a direct connection between the adsorption potentials and the magnitude of adsorption calculated from the Gibbs' adsorption formula could not be observed. Adsorption potentials depend on the total quantity of ions in the surface layer. The observed values of $d\psi/d \lg a_{\pm}$ approximately concur with the values calculated from the model of the discrete double layer suggested by B. V. Erschler (Zhur. Fiz. Khim. 20: 679, 1946) for the case of an interface between a solution and a metal.

Herbelot, Paul.
ELECTROSTATIC FILTER, tr. by J. C. Levy. 13 Nov 59, 5p. (2 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13073

Trans. of French patent 963,621, gr. 14, cl. 6, appl. 4 Mar 48, granted 4 Jan 50, pub. 17 July 50.

The present invention proposes a novel industrial product constituted by an electrostatic filter adapted to purify a gaseous stream charged with solid or liquid particles and in which, after having acquired a charge in an electric field, they are caused to pass through a thick wall made of a loosely meshed spongy substance preferably conductive giving rise to a low charge loss and at the interior of which the electric field is then zero. The charged particles are deposited on the wall due to the "electric image" and due to the spontaneous expansion of the entire system of charged particles having the same sign.

Ivanov, L. I., Kulikov, I. S., and Matveyeva, M. P.
A METHOD OF MEASURING VAPOUR TENSION AND DIFFUSION CONSTANTS (Myetod Izmereniya Uprugosti para i Diffuzionikh Konstant) 21 Nov 55 [9]p. (foreign text included) 1 ref. M-V. Trans. no. 2150; M. 42.
Order from LC or SLA mi$1.80, ph$1.80 59-18665

Trans. of Akademiya Nauk SSSR. [Otdeleniye Tekhnicheskikh Nauk]. Izvestiya, 1955, no. 8, p. 145-147.

The advantages of the use of radioactive isotopes are displayed most prominently in investigations into the kinetics of an isotope exchange reaction. A series of methods are under development at present. A method developed by the Metallurgical Institute of the Academy of Sciences, USSR, is described. (Metropolitan-Vickers Electrical Co. abstract)

Khorlin, A. Ya., Chizhov, O. S., and Kochetkov, N. K.
CONDENSATION OF KETONES WITH NITRILES UNDER THE CONDITIONS OF THE RITTER REACTION. [1959] 7p.
Order from ATS $8.25 ATS-31L37R

Trans. of *Zhur[nal] Obshchey Khim[ii] (USSR) 1959, v. 29, no. 10, p. 3411-3416.

Kiseleva, L. G. and Kabanov, B. N.
THE ADSORPTION OF SULFURIC ACID ON LEAD DIOXIDE tr. by U. B. Thomas, Jr. Sep 59, 11p. 12 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-10308

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1956, v. 108, no. 5, p. 864-867.

The adsorption on PbO_2 was measured by determining the decrease of the adsorbing substance in the solution. Results confirm the assumption, based on Frumkin's theory, that the previously observed (Akad. Nauk SSSR. Doklady 99: 805, 1954) anodic-oxygen increase with increasing electrode potential near the point of zero charge results from an increased adsorption of the anions of H_2SO_4 with increased positive charge of the PbO_2 surface. Adsorption begins at a slightly negative surface charge, sharply increases with a change of sign of the surface charge to positive, then almost stops changing at 0. 15 volts positive with respect to the point of zero change. In addition to the above experiments, the adsorption of cobalt sulfate on PbO_2 was measured from the change in activity of a $CoSO_4$ solution containing radioactive Co^{60}. About 2.5×10^{-10} moles/sq cm of cobalt sulfate was adsorbed from a solution 3. 5 M in H_2SO_4 and 0. 0322 M in $CoSO_4$.

Ksendzov, Ya. M. and Prokhvatilov, V. G.
PHYSICO-CHEMICAL AND ELECTRICAL PROPERTIES OF THE TiO_2 - ZrO_2 SYSTEM. June 58, 8p. 8 refs. C. T. S. no. 455.
Order from LC or SLA mi$1.80, ph$1.80 60-13309

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1957, v. 31, no. 2, p. 321-327.

In the system TiO_2-ZrO_2 there was found the existence of a compound with the composition of $ZrTiO_4$ and of solid solutions of rutile and ZrO_2 in the system boundaries. At the temperature of 1400°C, the boundary of the rutile solid solution lies between the molecular concentration of ZrO_2 of 11 to 12 per cent, and that of the tetragonal ZrO_2 - at about 15 per cent TiO_2 molecular concentration. With increasing temperatures, the boundaries of the solid solutions are displaced in the direction of higher solute element concentrations. A study was made of the electrical properties in the TiO_2-ZrO_2 system. It was found that the compound $ZrTiO_2$ has ε equal to 39, and a temperature coefficient of ε equal to - 110×10^{-6}. (Author's conclusions)

Leybush, A. G. and Shneerson, A. L.
RATE OF ABSORPTION. [1959] 12p.
Order from ATS $9.85. ATS-47L36R

Trans. of *Zhur[nal] Priklad[noy] Khim[ii] (USSR) 1950, v. 23, no. 11, p. 1176-1186.

Litvinenko, M. S.
HYDROGEN SULFIDE ABSORPTION RATE IN AQUEOUS SOLUTIONS OF SODIUM OR POTASSIUM CARBONATE. [1959] 24p.
Order from ATS $29.75 ATS-48L36R

Trans. of *Zhur[nal] Priklad[noy] Khim[ii] (USSR) 1952, v. 25, no. 7, p. 696-717.

Morozova, L. P. and Krotova, N. A.
THE RELATIVE PART PLAYED BY ELECTRIC AND DIFFUSION PROCESSES IN PHENOMENA RELATING TO THE ADHESION OF TWO POLYMERS (Otnositel'naya Rol Elektricheskikh i Diffuzionnykh Protsessov v Yavleniyakh Adgezii Dvukh Polimerov). May 58, 7p. 15 refs. G. T. S. no. 478.
Order from LC or SLA mi$1.80, ph$1.80 60-13051

Trans. of Akademiya Nauk SSSR. Doklady 1957, v. 115, no. 4, p. 747-750.

Polyakov, M. V., Urizko, V. I., and Gelenko, N. P.
THE EXISTENCE OF OPTIMUM CONDITIONS FOR THE CATALYTIC OXIDATION OF AMMONIA. [1959] [4]p. 17 refs. M 1025.
Order from LC or SLA mi$1.80, ph$1.80 60-13728

Trans. of [Akademiya Nauk SSSR]. Doklady, 1951, v. 77, no. 5, p. 835-[837].
Another translation is available from LC or SLA as RT-912 [5]p.

Protopopov, Kh. V., Arslanov, Kh. A. and others.
NEW LIQUID SCINTILLATORS [Novyye Zhidkiye Stsintillyatory] tr. by Lydia Venters. Nov 59, 10p. 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3916

Trans. of *Pribory i Tekhnika Eksperimenta (USSR) 1958, no. 2, p. 24-28.

The possibility of use of methylanthranylate, ethers of β-naphthol and other easily available substances as activators for liquid scintillators was investigated. A significant increase in the scintillation efficiency of methyl-anthranylate solution in toluene after the introduction of naphthalene was detected. For the removal of oxygen from liquid scintillators CO_2 was used successfully. After oxygen has been removed, 2.5 g/l of methyl anthranylate in a mixture consisting of 3% methanol, 15% naphthalene and 82% toluene showed the efficiency of 1.26 of the solution of 5g/l of terphenyl in toluene. (Author)

Ril, N. V.
ELECTROCONDUCTIVITY OF CRYSTALS OF POLYCYCLIC COMPOUNDS AND OTHER ORGANIC NON-CONDUCTORS, II. [1959] 11p.
Order from ATS $18.95 ATS-72L36R

Trans. of Zhur[nal] Fiz[icheskoy] Khim[ii] (USSR) 1955, v. 29, no. 7, p. 1152-1161.

Schmeisser, Martin.
IMPROVED METHOD FOR PRODUCING NITROGEN TRIFLUORIDE. Feb 60, 3p. 3 refs.
Order from RIS $5.00 RIS rept. 97048

Trans. of German patent application Sch 23 266 (12i, 10) DAS 1 052 369, filed 16 Dec 57, pub. 12 Mar 59.

A process is described whereby a solution of urea in anhydrous hydrogen fluoride is subjected to electrolysis.

Starodubtsev, S. V.
USE OF THE METHOD OF MODULATED MOLECULAR BEAMS FOR INVESTIGATION OF ADSORPTION PHENOMENA, tr. by Lydia Venters. Oct 59, 20p. 7 refs.
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3880

Trans. of Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki (USSR) 1949, v. 19, no. 3, p. 215-224.

To measure the probability of evaporation of adsorbed atoms from the surface of an incandescent metal the method of modulation of atomic or molecular beams conducted to the adsorbing filament is suggested. The change in time of the flux of positive ions from the filament enables one to determine the probability of evaporation of the adsorbed atom per second and the heat of evaporation of the ion and atom. The method was tested in the example of the K and Na adsorption on W. The heat of evaporation $\lambda_{K^+} = 2.52$ ev and $\lambda_{Na^+} = 3.3$ ev. (Author)

Tsiklis, D. S.
LIMITED MUTUAL SOLUBILITY OF GASES AT HIGH PRESSURES IN THE AMMONIA-NITROGEN SYSTEM (Ogranichennaya Vzaimnaya Rastvorimost' Gazov pri Vysokikh Davleniyakh v Sisteme Ammyak-Azot). [1959] [8]p. 8 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-22382

Trans. of [Akademiya Nauk SSSR]. Doklady, 1952, v. 86, no. 5, p. 993-995.

An apparatus is described which was constructed for the investigation of phase equilibria at pressures up to 20,000 kg/sq cm. The apparatus was used with an ammonia-nitrogen system at temperatures between 148° and 175°C and at pressures up to 16,700 kg/sq cm. The resulting critical curve is directed towards higher temperatures.

Urazovskiy, S. S. and Chetayev, P. M.
A NEW PRINCIPLE OF PHASE ANALYSIS OF POLYMORPHOUS SUBSTANCES BY THE SURFACE TENSION, tr. by G. G. S. 20 Jan 50 [16]p. (2 figs. omitted) 2 refs.
Order from SLA mi$2.40, ph$3.30 60-10334

Trans. in manuscript of Akademiya Nauk SSSR. Doklady, 1949, v. 67 [no. 1] p. 101-104.

Varshavskiy, Ya. M. and Vaysberg, S. E.
LIMITS OF APPLICABILITY OF THE FIRST ORDER KINETIC EQUATION FOR ISOTOPIC EXCHANGE REACTION [O Granitsakh Primenimosti Kineticheskogo Uravneniya Pervogo Poryadka dlya Reaktsiy Izotopnogo Obmena] [1959] 8p. 9 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3679

Trans. of [Zhurnal Fizicheskoy Khimii (USSR)] 1958, v. 32 [no. 2] p. 454-459.

The kinetic equation of the isotope exchange reaction taking place as a bimolecular reaction is derived. The equation, appearing as a second order equation, practically boils down to a first order equation under certain conditions. Anyone of three conditions is sufficient, namely: (1) The closeness to unity of the coefficient to equilibrium distribution of isotopes; (2) a low concentration of the components in which the accumulation of the given isotope is measured; or (3) a low concentration within the system of the isotope accumulation is measured in the given component. The deviation of the velocity constant of the bimolecular isotope exchange reaction from the velocity constant calculated from a first order equation increases continuously with the proportion of exchange (i.e., as equilibrium is approached), approaching a definite maximum value, which does not exceed the minimum value corresponding to the beginning of the exchange by more than two. (4) The corresponding maximum deviations are calculated for several values of the isotope distribution coefficient that may occur in practice throughout the range of changes of the component and isotope concentrations. The magnitudes of these deviations enable us to judge the extent to which the velocity constant does not accord with a first order kinetic equation and to establish the limits of applicability of this equation.

Vinogradov, A. P., Kutyurin, V. M. and others.
ISOTOPIC COMPOSITION OF THE OXYGEN EVOLVED IN PHOTOSYNTHESIS [Izotopnyy Sostav Kisloroda Fotosinteza]. [1960] 6p.
Order from LC or SLA mi$1.80, ph$1.80 UCRL trans-496

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 125, no. 5 [p. 1151-1153].
Another translation is available from LC or SLA mi$1.80, ph$1.80 and 59-20552, 1959, 4p.

Determinations were made of the precise isotopic composition of the oxygen of fresh water photosynthesis (experiments with Eloden canadensis) and of marine phytoplankton (diatomic algae for the most part).

Wojtczak, J.
EFFECT OF A MAGNETIC FIELD ON THE PROCESS OF ACETALDEHYDE POLYMERIZATION. [1959] 10p.
Order from ATS $18.00 ATS-10L35P

Trans. of Chem[ia] Stosowana (Poland) 1958, v. 4, p. 387-399.

Zaytsev, A. A., Kosyakov, V. N. and others.
DISPROPORTIONATION OF AMERICIUM (IV) tr. by Helen J. Chick. [1960] 7p. 8 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3885

Trans. of unidentified mono. [Disproportsionirovaniya Ameritsiya (IV)]

The reaction of the disproportionation of americium (IV) in solutions of sulfuric acid was studied qualitatively. The overall reaction of disproportionation

$$3\,Am(IV) = 2\,Am(III) + Am(VI)$$

is specified by the two parallel reactions

$$2\,Am^{4+} + 2H_2O = Am^{3+} + AmO_2^{+} + 4H^{+}$$

$$Am^{4+} + AmO_2^{+} = Am^{3+} + AmO_2^{2+}$$ (Author)

Zaytsev, A. A., Kosyakov, V. N. and others.
KINETICS OF AMERICIUM (V) REDUCTION BY HYDROGEN PEROXIDE, tr. by Helen J. Chick. [1960] 8p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3877

Trans. of unidentified mono. [Kinetika Vosstanovleniya Ameritsiya (V) Perekis'yu Vodoroda]

The kinetics of the reduction of americium(V) by hydrogen peroxide in 0.1M perchloric acid was studied. The rate constants at 25°, 30° and 35°C were found to be 14.8±1.5, 21.6±2.2 and 30.3±3.0 moles^{-1} liter hour^{-1}. The calculated energy of activation of the reaction (Arrhenius) and the change of enthalpy of the activated complex are: $\Delta E = 13.3$ Kcal/mole and $\Delta H^{*} = 12.7$ Kcal/mole. (Author)

Zil'berman-Granovskaya, A. A.
MEASUREMENT OF SMALL VAPOR PRESSURES. I. VAPOR PRESSURE OF NAPHTHALENE, CAMPHOR AND GLYCEROL. [1959] 12p.
Order from ATS $14.90 ATS-15L37R-a

Trans. of Zhur[nal] Fiz[icheskoy] Khim[ii] (USSR) 1940, v. 14, no. 5/6, p. 759-767.

Zil'berman-Granovskaya, A. A.
MEASUREMENT OF SMALL VAPOR PRESSURES. II. VAPOR PRESSURE OF CIS AND TRANS ISOMERS. [1959] 6p.
Order from ATS $8.00 ATS-15L37R-b

Trans. of Zhur[nal] Fiz[icheskoy] Khim[ii] (USSR) 1940, v. 14, no. 5/6, p. 768-773.

Zil'berman-Granovskaya, A. A. and Shugam, E. A.
MEASUREMENT OF SMALL VAPOR PRESSURES. III. MEASUREMENT OF THE VAPOR PRESSURES OF HALOGEN-SUBSTITUTED BENZENES. [1959] 4p.
Order from ATS $5.00 ATS-15L37R-c

Trans. of Zhur[nal] Fiz[icheskoy] Khim[ii] (USSR) 1940, v. 14, no. 7, p. 1004-1006.

EARTH SCIENCES

SOVIET GEOPHYSICS ON THE FORTIETH ANNIVERSARY OF THE GREAT OCTOBER SOCIALIST REVOLUTION. 22 Jan 60, 16p. 1 ref.
JPRS: L-1058-D.
Order from OTS $0.50 59-11634

Trans. of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1957, no. 11, p. 1313-1322.

A survey.

Fesenkov, V. G.
SOME RESULTS OF INVESTIGATIONS ACCORDING TO THE IGY PROGRAM. 29 Dec 59, 17p.
JPRS: 2092-N.
Order from OTS $0.50 60-11158

Trans. of Akademiya Nauk Kazakhskoy SSR [Alma-Ata]. Vestnik, 1959 [v. 15] no. 6, p. 36-46.

Climatology and Meteorology

LITERATURE ON METEOROLOGY AND HYDROLOGY DURING 1956 (CONTINUED): ARTICLES IN JOURNALS AND COLLECTIONS [BIBLIOGRAPHY]. 22 Jan 60, 9p. 88 refs. JPRS: L-1008-D.
Order from OTS $0.50 59-11630

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 7, p. 57-60.

See also 59-11599, 60-11052

LITERATURE ON METEOROLOGY, HYDROLOGY AND OCEANOGRAPHY FOR 1958 (CONTINUED) [BIBLIOGRAPHY]. 10 Dec 59, 13p. 111 refs. JPRS: L-1129-N.
Order from OTS $0.50 60-11110

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 8, p. 50-54.

The 111 articles, from periodicals and collections, are listed according to the Cyrillic alphabet under the headings: meteorology (54 items), agricultural meteorology (10 items), hydrology (30 items), and oceanography (17 items). (See also 59-11506, 60-11015, 60-11197)

LITERATURE ON METEOROLOGY, HYDROLOGY AND OCEANOLOGY IN 1958 (CONTINUED) [Literatura po Meteorologii, Gidrologii i Okeanografii za 1958 g.]. Articles in Journals and Collections. 21 Dec 59, 10p. 98 refs. JPRS: L-1146-N.
Order from OTS $0.50 60-11134

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 7, p. 54-57.

The present list contains 49 Soviet papers on meteorology, 14 on agricultural meteorology, 15 on hydrology, and 20 on oceanography. (See also 60-11015)

LITERATURE ON METEOROLOGY, HYDROLOGY AND OCEANOGRAPHY SINCE 1958 (CONTINUATION) [BIBLIOGRAPHY] 21 Jan 60, 12p. 103 refs.
JPRS: L-1170-N.
Order from OTS $0.50] 60-11197

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 9, p. 54-57.

The 103 articles, from periodicals and collections, are listed according to the Cyrillic alphabet under the headings meteorology (33 items), agricultural meteorology (13 items), hydrology (19 items), and oceanography (38 items). (See also 60-11110)

Girs, W. A.
YU. B. KHRABROV: "METHODS OF MAKING WEATHER FORECASTS FOR PERIODS OF 3-7 DAYS". 10 Dec 59, 10p. JPRS: L-1128-N.
Order from OTS $0.50 60-11109

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 8, p. 47-50.

A favorable review of the book, which was published by the Hydrometeorology Publishing House. The reviewer states, "The publication of Khrabrov's book marks a new and important stage in the development of the methods of the Mul'tanovskiy school, and undoubtedly this book will be widely and successfully utilized by the synopticians of the forecasting service, scientific researchers in the fields concerned, and by the instructors and students at the higher educational institutions."

Klinov, F. Ya.
COHESIVE CRYSTALLIZATION OF ATMOSPHERIC WATER VAPORS. 22 Jan 60, 7p. (2 figs. omitted) JPRS: L-1003-D.
Order from OTS $0.50 59-11625

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 7, p. [22]-25.

Observations are presented of specific processes of the cohesive crystallization of water vapors of the atmosphere at temperatures below -40°. In the atmospheric layer nearest the earth, processes of cohesive crystallization of water vapors (formation of frozen crystal forms on slides, etc) proceed in a heterogeneous manner. For example, the process of rather intensive cohesive crystallization takes place in a layer 200 to 400 m above the earth's surface and is almost never observed below this layer. At different (even nearby) levels various crystal forms appear at one and the same time. In the atmospheric layer nearest the earth, the intensity of growth of crystal forms of cohesive crystallization increases (though not uniformly) with increasing height. In addition to this, observations show that, with increasing height, the grain of the sleet becomes larger and crystal forms prevail over granular forms. Granular sleet, due to its own physical essence, is not determined by the process of cohesive crystallization, but is directed to this phenomenon because of its relationship with crystalline sleet growing on nuclei on objects as a result of the recondensation of water vapor from supercooled drops on the nucleus which forms on the object.

Krichak, O. G.
IN ANTARCTICA. 22 Jan 60, 4p. JPRS: L-902-D.
Order from OTS $0.50 59-11600

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 6, p. 63-64.

The work of the aerometeorological detachment of the second Antarctic expedition is reported briefly.

Kurilova, Yu. V. and Khachatryan, S. P.
THE STRUCTURE OF ATMOSPHERIC TURBULENCE ACCORDING TO DATA FROM HIGH-SPEED AIRCRAFT. 10 Dec 59, 8p. 6 refs. JPRS: L-1126-N.
Order from OTS $0.50 60-11107

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 8, p. 8-12.

A study was made of the peculiarities of the structure of turbulence on altitudes of up to 13 or 14 kilometers. It concerned the properties of isolated disturbances, and the nature of turbulent zones and their dependence on altitude and intensity. Data on 54 flights under jet-stream conditions were analyzed. Results indicated that the coefficient of the encounterability of turbulence decreases appreciably with increasing altitude. The share of large disturbances in the spectra of the turbulence causing aircraft bumping increases with decreasing intensity and increasing altitude. The extent of the zone of atmospheric turbulence may in individual cases reach 150 kilometers, but in the majority of cases it does not exceed 30 to 50 kilometers. The extent of the areas with moderate turbulence decreases with increasing altitude. For feeble turbulence, conversely, the extent of its areas increases with increasing altitude. In the lower troposphere the length of the disturbed areas increases with increasing maximum overloading. When all other conditions remain equal, the size of disturbed zones is smaller for the TU-104 aircraft, because aircraft of this type are more stable and react to a narrower range of overloadings. In the upper troposphere and lower stratosphere, in connection with the selectivity thus displayed by the TU-104, the turbulent areas are characterized by an intermittent structure.

Leonov, M. P.
SYNOPTIC METEOROLOGY: BOOK REVIEW (Sinopticheskaya Meteorologiya) by O. G. Krichak. 22 Jan 60, 7p. (figs. omitted) 1 ref. JPRS: L-1009-D.
Order from OTS $0.50 59-11631

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 7, p. 54-56.

The book being reviewed was issued by Glavnoye Upravleniye Gidrometeorologicheskoy Sluzhby SSSR (Main Administration of the Hydrometeorological Service USSR) as a textbook for hydrometeorological technical schools.

Morozova, M. I., Petrosyants, M. A., and Chernysheva, O. N.
CHARACTER OF THE AIR CURRENTS OVER THE PAMIR AND WEST TIEN SHAN MOUNTAINS. 26 Jan 60, 15p. 13 refs. JPRS: L-1180-N.
Order from OTS $0.50 60-11215

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 9, p. 3-12.

Certain conclusions about atmospheric circulation in the summer and autumn seasons are presented from data of the 1956 and 1957 expeditions. During the 1956 expedition, which lasted from 27 July to 22 August, radio soundings were conducted once a day at the following five points: Dzhambul ($\varphi = 42^{\circ}51'$, $\lambda = 71^{\circ}23'$, $h = 642$ meters), Arkit ($\varphi = 41^{\circ}531$, $\lambda = 72^{\circ}001$, $h = 1,290$ meters; Osh ($\varphi = 40^{\circ}32'$, $\lambda = 72^{\circ}48'$, $h = 1,020$ meters), Lake Kara-Kul' ($\varphi = 39^{\circ}01'$, $\lambda = 73^{\circ}39'$, $h = 3,932$ meters), and Kzyl-Rabat ($\varphi = 37^{\circ}30'$, $\lambda = 74^{\circ}36'$, $h = 3,860$ meters). The same points and also Namangan ($\varphi = 40^{\circ}59'$, $\lambda = 71^{\circ}35'$, $h = 465$ Meters) and Sary-Tash ($\varphi = 39^{\circ}44'$, $\lambda = 73^{\circ}15'$, $h = 3,155$ meters) were the sites of base balloon-pilot observations executed three times daily. The effect of the large montane systems of Soviet Central Asia on the formation of the wind field extends at least as high as an altitude of 16 kilometers, i. e., it exceeds, by three or four times, the height of the mountains themselves. It is certain that jet streams arise because of the effect of montane systems.

Osokin, S.
NEW SOVIET HYDRO-METEOROLOGICAL RESEARCH VESSEL MS "A. I. VOYEYKOV": "A. I. VOYEYKOV" WEIGH ANCHOR (A. I. Voyeykov" Ukhodit v Okean). 3 Dec 59 [5]p. (1 illus. omitted) AF 1256336.
Order from LC or SLA mi$1.80, ph$1.80 60-13200

Summary trans. from Sovetskaya Aviatsiya (USSR) 1959, 22 Aug, p. 4.

The Main Directorate of the Hydro-Meteorological Service (Glavnoye Upravleniye Gidrometeorologicheskoy sluzhby) of the USSR received from the Order of Lenin Shipbuilding Yard, im. I. I. Nosenko, a new expeditionary, first class vessel, "A. I. Voyeykov". The name of the ship honors one of the prominent Russian climatologists, geographers and travellers, Aleksander Ivanovich Voyeykov. "A. I. Voyeykov" is a double decker, full-scantling motorship with standard saddle backing and an elongated deckhouse structures, but without forecastle. Her displacement is 3,600 tons; her speed, up to 13 knots. Fuel and water reserves enable the vessel to operate in the most distant areas of the ocean for several months. This expeditionary vessel is fitted with complete electric and radio-navigational equipment which enables her to compute and determine the location of any place without reference to the land and under any conditions. "A. I. Voyeykov", in fact, is a genuine floating scientific hydro-meteorological research institute. There are on board hydrological, meteorological, aerological, synoptic and other laboratories. (Extracted from the report)

Ped', D. A. and Sidochenko, T. V.
CAUSES OF THE OSCILLATIONS IN THE INTENSITY OF THE ZONAL CIRCULATION OF THE ATMOSPHERE. 29 Jan 60, 11p. 15 refs. JPRS: L-1183-N.
Order from OTS $0.50 60-11218

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 9, p. 20-24.

Results are given of an analysis of the variations in intensity of the zonal circulation of the atmosphere. The mean annual fluctuations in the intensity of zonal circulation of the atmosphere are to a major degree affected by the mean annual fluctuations in solar activity. Intensity in the troposphere increases with an increase in solar activity and, conversely, decreases with a decrease in that activity. This effect manifests itself clearly in the annual values of the intensity of zonal circulation for shorter periods. Apparently, circulation and its fluctuations during smaller time intervals are affected by terrestrial effects. In the mean annual values these individual peculiarties of circulation are smoothed out, and, as a result, there remains the over-all annual background, which depends on the effect of solar activity. Therefore, in devising methods of forecasting for periods longer than a month, it is necessary to take into account, in addition to purely terrestrial factors, the effect of solar activity.

Pobiyakho, V. A.
SOUNDING THE ATMOSPHERE WITH THE A-22-III RADIOSONDE. 10 Dec 59, 7p. 2 refs. JPRS: L-1127-N.
Order from OTS $0.50 60-11108

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 8, p. 35-37.

Operational trials demonstrated that the A-22-III radiosonde displays a number of advantages compared with the comb radiosonde with regard to the accuracy of measurements of meteorological elements, has a much smaller magnitude of inertional and radiational errors, and provides more detailed information on temperature, humidity and pressure. The A-22-III radiosonde can measure pressure from 1,050 to 10 millibars with a mean error of about ±2 millibars, temperature within a range of from +40° to -70°C with a mean error of about ±0.5°, and humidity within a range of from 15 to 100 percent with a mean error of ±5 percent. The weight of the radiosonde together with the housing does not exceed 650 grams (excluding the power-supply battery and the radio transmitter), and it measures 175x125x230 millimeters.

Pogosyan, Kh. P.
HIGH FRONTAL ZONES AND JET STREAMS IN THE ATMOSPHERE. 22 Jan 60, 10p. (3 figs. omitted) 6 refs. JPRS: L-1001-D.
Order from OTS $0.50 59-11623

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 7, p. 3-11.

Pogosyan, Kh. P.
STRATOSPHERIC JET STREAM IN THE WARM HALF OF THE YEAR. 21 Dec 59, 15p. 13 refs. JPRS: L-1144-N.
Order from OTS $0.50 60-11132

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 7, p. 3-13.

The mean monthly values of temperature differences in the jet-stream system for the warm half of 1958 are tabulated. Analogously to the cold half of the year the values of the mean-temperature differences for the subtropical jet streams were obtained according to its distribution by corresponding month in Bahrein and Rostov-on-the-Don, while for the extra-tropical jet streams these values were obtained according to temperature difference in Rostov-on-the-Don and Kandalaksha, and also in Kandalaksha and Cape Zhelaniya. For all tropospheric jet streams the temperature differences were determined within the layer between altitudes of one and nine kilometers; the temperature differences for the stratospheric jet stream were determined between the altitude levels of 12 and 30 kilometers over Rostov-on-the-Don and Cape Zhelaniya. An appreciable decrease in temperature differences in the subtropical jet-stream system occurs from March to June and July. A similar de-

crease occurs in the extra-tropical jet-stream system. The latter, however, lacks an as explicitly expressed yearly course, because, apparently, aside from the general law of the seasonal decrease in the magnitude of temperature differences in accordance with synoptic processes, every year is marked by a different, distinctive territorial distribution of the greatest temperature differences in the jet-stream system. The temperature differences in the stratospheric jet stream are of a negative sign, reaching their maximum minus values in May to August, which also ensures the formation of the summer east-to-west flow in the stratosphere. A tabulation of the mean maximum wind velocities on the jet-stream axis shows a gradual decline in velocities in the subtropical-jet-stream system from March to July or August. In its general outline this decline in velocities coincides with the decrease in the temperature contrasts in the system of the corresponding jet streams.

Popova, T. P.
CHARACTERISTICS OF WARM FRONTS OVER THE EUROPEAN PART OF THE USSR IN WINTER [Osobennosti Teplykh Frontov nad Evropeyskoy Territorey SSSR Zimoy]. 22 Jan 60, 8p. (7 figs. omitted) JPRS: L-896-D.
Order from OTS $0.50 59-11594

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 6, p. 12-20.
Another translation is available from LC or SLA mi$2.40, ph$3.30 as 59-16279, Oct 58 [13]p.

Shcherbakova, L. F.
THE DIFFUSION HYGROMETER. 22 Jan 60, 7p. (2 figs. omitted) 8 refs. JPRS: L-899-D.
Order from OTS $0.50 59-11597

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 6, p. 49-52.

A survey.

Shishkov, V. G.
ON CERTAIN REGULARITIES IN THE DEVELOPMENT OF ATMOSPHERIC PRESSURES. 22 Jan 60, 7p. 13 refs. JPRS: L-1002-D.
Order from OTS $0.50 59-11624

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 7, p. 12-16.

The assumption, that if quasiperiodic waves in the atmosphere processes are actually real, then they must be manifested in the first place in the rhythm of analogous synoptic processes and in the second place in the formation between these analogous processes of opposite synoptic processes, was verified by the data from April 1948 to April 1952.

T'u, Chang-wang.
METEOROLOGICAL WORK IN COMMUNIST CHINA; SUMMARY OF METEOROLOGICAL WORK DURING THE FIRST FIVE-YEAR PLAN AND THE POLICY AND MISSION IN THE SECOND FIVE-YEAR PLAN. 13 May 59, 22p. JPRS: 1569-N.
Order from OTS $0.75 59-13503

Trans. of T'ien-ch'i Yueh-k'an (Chinese People's Republic) 1958, no. 9, p.1-6.

Yang, Jen-chang.
CLIMATIC CONDITIONS IN THE UPPER REACHES OF THE HEI-LUNG CHAING AND THE HU-LUN-PEI-ERH REGION. 28 July 59, 21p. 10 refs. JPRS: 837-D.
Order from OTS $0.75 59-11731

Trans. of Ti-li-hsueh Tze-liao (Chinese People's Republic) 1957, no. 1, p. 97-108.

Zavarina, M. V. and Romasheva, M. K.
EXTENT OF CLOUDS OVER ARCTIC SEAS AND CENTRAL ARCTIC USSR. 25 Jan 60, 8p. 3 refs. JPRS: L-2019-D.
Order from OTS $0.50 60-31036

Trans. of Problemy Arktiki (USSR) 1957, no. 2, p. 127-132.

Data are tabulated which were obtained by the Flying Observatory expedition of the Arctic Institute during 1949 through 1955. For St, Sc, Ns, As, Ac, Cu, Cb, Ci, and Cs clouds, respectively, the average altitudes, in meters, of the lower limits were 250, 900, 800, 2500, 2700, 1000, 1000, 5600, and 5800. The average altitudes of the upper limits of the first seven of the above types of clouds were 660, 1300, 1400, 3200, 3100, 2000, and 1300 meters. The upper altitudes of Ci and Cs clouds were not obtained. The extremes of the lower limits, in meters, varied from 0 to 1400 for St, 50 to 2600 for Sc, 50 to 1800 for Ns, 1000 to 5500 for As and Ac, 400 to 1500 for Cu, 400 to 2000 for Cb, 4000 to 6500 for Ci, and 4000 to 8500 for Cs clouds. The extremes, in meters, of the upper limits varied from 150 to 1800 for St, 300 to 4000 for Sc, 200 to 3500 for Ns, 1400 to 5700 for As, 1500 to 5500 for Ac, 700 to 4500 for Cu, and 1000 to 3700 for Cb clouds.

Yelovskikh, M. P. and Kondrat'yev, K. Ya.
RADIOMETER FOR MEASURING THE INTENSITY OF HEAT RADIATION OF THE ATMOSPHERE AND ITS COMPARISON WITH THE PYRGEOMETER. 22 Jan 60, 6p. (1 fig. omitted) 5 refs. JPRS: L-1005-D.
Order from OTS $0.50 59-11627

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 7, p. 49-51.

Frost Science

Ager, B. H.
THE COMPACTED SNOW ROAD. II. CLIMATIC CONSIDERATIONS (Den Snöpackade Vägen. II. Väderlekens Betydelse) tr. by D. A. Sinclair. 1959, 40p. 13 refs. Technical Trans. 816.
Order from NRCC mi$2.00 NRCC C-3126

Trans. of Svenska Skogsvardsföreningens Tidskrift, 1955 [v. 53] no. 2, p. 201-227.

A series of experiments were made in the winter of 1954-55 to determine how the freezing and hardness of a compacted snow road depend on climatic factors. Roads insulated on the surface with plywood and snow were loose in the surface layers but hardened towards the bottom. Roads insulated at the surface with plastic showed the same hardness as an entirely uninsulated road. A road insulated at the bottom with plastic had the same surface hardness as an entirely uninsulated road, but was considerably looser at the bottom. A road insulated on the surface with plywood and snow and on the bottom with plastic was relatively loose throughout. The relationship between the hardness and temperature variations in a roadbed was very close. Results indicate that a newly compacted road hardens from the bottom, relatively independently of the weather, because of the transfer of heat and moisture from the subgrade to the roadbed. (See also 59-19202, 60-15310)

Savarenskiy, F. P.
DAMS IN PERMAFROST REGIONS (Plotiny v Rayonakh Vechnoy Merzloty) tr. by June Stevens. 4 Mar 59 [4]p. Trans. no. 347.
Order from LC or SLA mi$1.80, ph$1.80 59-22387

Trans. of Savarenskiy, F. P., Izbrannye Sochineniya (USSR) 1950, p. 370-371.

Two dam failures are described.

Troll, Carl.
STRUCTURE SOILS, SOLIFLUCTION, AND FROST CLIMATES OF THE EARTH (Strukturböden, Solifluktion, und Frostklimate der Erde). Oct 58 [127]p. 440 refs. Trans. 43.
Order from LC or SLA mi$6.30, ph$19.80 59-14262

Trans. of [Geologische Rundschan (West Germany) 1944, v. 34, no. 7/8, p. 545-694].

Geodesy

Modrinskiy, N. I.
GEODESY IN THE PEOPLE'S REPUBLIC OF POLAND. [Geodeziya v Pol'skoy Narodnoy Republike]. 15 Jan 60, 12p. 2 refs. JPRS: L-1158-N.
Order from OTS $0.50 60-11165

Trans. of Geodeziya i Kartografiya (USSR) 1959, no. 6, p. 61-67.
Another translation is available from LC or SLA mi$1.80, ph$1.80 as 59-22150, AF-1 256 158, 6 Oct 59 [5]p.

Romanyuk, V. A.
DETERMINING THE FORCE OF GRAVITY AT SEA BY THE PENDULUM METHOD. 22 Jan 60, 17p. (1 fig. omitted) 3 refs. JPRS: L-917-D.
Order from OTS $0.50 59-11606

Trans. of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1958, no. 1, p. 54-64.

Approximate differential equations of the motions of inclinometers are worked out by computation of terms of the second order of infinitesimals. Allowable measurement errors of the components of acceleration and the gradients of the support as a function of their magnitude are determined. Approximate solutions of differential equations of the motion of inclinometers and accelerometers are obtained. Expressions are formulated for U_0^2, V_0^2, and W_0^2. Practical cases of their calculation and correction of the second order for points determined on surface craft are examined. (Author)

Geography

T'ENG-KO-LI DESERT. 16 Dec 59, 19p. JPRS: 2076-N.
Order from OTS $0.50 60-11126

Trans. of Ti-li Chih-shih (Chinese People's Republic) 1958, v. 9, no. 12, p. 539-543.

Wu, Chuan-chun.
METHODS USED IN ECONOMIC GEOGRAPHY INVESTIGATIONS IN COMMUNIST CHINA. 28 July 59, 10p. JPRS: 838-D.
Order from OTS $0.50 59-11732

Trans. of Ti-li-hsueh Tze-liao (Chinese People's Republic) 1957, no. 1, p. 138-145.

Geology

Ch'i, Yen-nien.
NATURAL REGIONS OF THE WU-TING-HO VALLEY IN NORTHERN SHENSI. 26 June 59 [12]p. JPRS: 782-D.
Order from OTS $0.50 59-11674

Trans. of Ti-li-hsueh Tze-liao (Chinese People's Republic) 1957, no. 1, Dec. p. 8-15.

Kudryavtsev, N. A.
GEOLOGICAL PROOF OF THE DEEP ORIGIN OF PETROLEUM. [1959] 19p.
Order from ATS $35.80 ATS-96L36R

Trans. of Vsesoyuz[nyy] Neftyan[yy] Nauch[no]-Issledovatel'[skiy] Geologo-Razvedoch[nyy] Inst[itut]. Trudy. [Novaya Seriya] (USSR) 1959, no. 132, p. 242-262.

Lu, Jen-wei.
PRELIMINARY SURVEY OF TYPES OF LAND FORMS OF THE TUNG-TING-SHAN IN KIANGSU. [1959] 20p. 4 refs. JPRS: 784-D.
Order from OTS $0.50 59-11676

Trans. of Ti-li-hsueh Tze-liao (Chinese People's Republic) 1957, no. 1, p. 46-56.

Silvestri, A.
THE GENUS NUBECULARIA DE FRANCE. [1959] 8p.
Order from ATS ATS-93K22I

Trans. of Accad[emia Nazionale dei] Lincei. Atti (Italy) 1897, v. 50, Sess. IIa, p. 29-36.

Sokolovs'kiy, I. L.
RECENT AND PRESENT MOVEMENTS OF THE EARTH'S CRUST IN THE REGION OF THE UKRAINIAN SSR. 11 Jan 60, rev. 22 Jan 60, 6p. JPRS: L-1997-D.
Order from OTS $0.50 60-31021

Trans. of Akademiya Nauk URSR, Kiev. Visnyk, 1959, v. 30, no. 9, p. 3-7.

Ts'ao, Chia-hsin.
SKETCHES ON LAND FORMS IN THE TA-TUNG BASIN IN NORTHERN SHANSI. 26 June 59 [12]p. JPRS: 783-D.
Order from OTS $0.50 59-11675

Trans. of Ti-li-hsueh Tze-liao (Chinese People's Republic) 1957, no. 1, p. 40-46.

Yu, Hang-chang.
SAND DUNES OF LOWER WEI AND LO RIVERS. 26 June 59, 18p. JPRS: 785-D.
Order from OTS $0.50 59-11677

Trans. of Ti-li-hsueh Tze-liao (Chinese People's Republic) 1957, no. 1, p. 81-88.

Oceanography

USSR OCEANOGRAPHIC RESEARCH. 24 Dec 59, 17p. JPRS: 2097-N.
Order from OTS $0.50 60-11147

Contents:
1. Bathometer for Taking Water Samples [Batometr dlya Otbora Prob Vody] by V. I. Rogozhkin. Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 5, p. 54-55.
2. New Instrument for Measuring the Optical Properties of Sea Water by M. V. Kozlyaninov. Trans. of Akademiya Nauk SSSR. Institut Okeanologii. Trudy, 1957, v. 25, p. 134-142.

Dreyer, A. A. and Selitskaya, Ye. S.
USSR OCEANOGRAPHIC RESEARCH: MEASUREMENTS OF WIND-RAISED WAVES DURING THE SECOND VOYAGE OF THE COMPLEX ANTARCTIC EXPEDITION [AND] STUDY OF VARIATIONS IN SEA LEVEL. 8 Jan 60, 12p. JPRS: L-1166-N.
Order from OTS $0.50 60-11164

Trans. of Mezhdunarodnyy Geogizicheskiy God. Informatsionnyy Byulleten (USSR) 1959, no. 7, p. 57-64.

Ivanov, A. A.
THE PHOTO-RECORDING OF WAVE ELEMENTS FROM THE SHORE AND FROM A SHIP (Fotoregistratsiya Elementov Voln s Berega i s Sudna) tr. by Acton Taylor. 5 June 59 [20]p. (7 figs. omitted). M656.
Order from LC or SLA mi$2.40, ph$3.30 59-22614

Trans. of A[kademiya] N[auk] SSSR. Morskoy Gidrofizicheskiy Institut. Trudy, 1950, v. 4, p. 15-22.

This paper describes a method of slit photography and indicates the feasibility of using it for recording waves from the shore and from ships. (Author) (See also 59-22613)

Ivanov, A. A.
SOME CONCLUSIONS FROM AN ANALYSIS OF OBSERVATIONAL DATA ON WIND-EXCITED DISTURBANCES (Nekotoryye Vyvody iz Analiza Dannykh Nablyudenii nad Vetrovym Volneyem) tr. by Robinson. June 59, 26p. (7 figs. omitted) 3 refs. M657.
Order from LC or SLA mi$2.70, ph$4.80 59-22613

Trans. of Akademiya Nauk SSSR. Morskoy Gidrofizicheskiy Institut. Trudy, 1956, v. 8, p. 44-62.

The following conclusions are drawn from an analysis of photographic recordings of sea disturbances. The recordings were made according to a previously described method (this journal 4: 15-22, 1954, a translation of which is available from LC or SLA as 59-22614). The elements of sea waves are nonuniform, both along their direction of propagation and along the wave front. Along the wave front the height varies to a markedly greater extent than the other elements, especially in 3-dimensional disturbances. The degree of nonuniformity of a disturbance depends on (1) the regime in which the wind is blowing, (2) the stage of development of the disturbance (age of the waves), (3) the extent of the sea surface exposed to wind action, and (4) the depth of the sea. Observational data of wave height obtained with wave record-

ers having detectors of small diameter characterize the variation of height along the wave front to a greater extent than the variation of height in a sequence of waves, in the case of a 3-dimensional disturbance. The distribution curves of the values of wave elements for compound and complex disturbances are not unimodal.

Tareyev, B. A.
ON FREE CONVECTION IN THE DEEPWATER TROUGHS OF THE OCEANS. 8 Jan 60, 7p. 4 refs. JPRS: 2119-N.
Order from OTS $0.50 60-11169

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 127, no. 5, p. 1005-1008.

An examination of the characteristic values of convection parameters on the basis of observational data shows that the actual values of R will be considerably above the critical R's even at extremely low (of the order of 0.01 degree per 100 meters) negative superadiabatic temperature gradients and consequently convection will take place despite the stabilizing effect of the earth's rotation.

Vinogradov, M. E.
LAKES OF THE ANTARCTIC "OAZIS". [1960].
Order from ANSP

Trans. of Priroda (USSR) 1957, v. 46, no. 10, p. 89-92.

A description of unfrozen lakes and fjords, Explored by Soviet Scientists in January, 1956. Incls. phyto plankton species. (Phila. Academy of Natural Sciences abstract)

Physics of the Atmosphere

Devyatova, V. A.
MICROAEROLOGICAL INVESTIGATIONS OF THE LOWER KILOMETER LAYER OF THE ATMOSPHERE. Oct 59, 163p. 44 refs.
Order from OTS $1.75 AEC-tr-3799

Trans. of mono. Mikroaerologicheskiye Issledovaniya Nizhnego Kilometrovogo Sloya Atmosfery, Leningrad, 1957.

In the summer, in the layer of the atmosphere up to 700 meters (in homogeneous air masses) one observes a sufficiently clearly pronounced daily course of wind velocity with one maximum and one minimum. In the very lowest layer, the maximum values occur during the day (1 to 2 p.m.), and a broad minimum is observed during the night. The reversal of the daily course of the wind velocity occurs at an altitude of 150 to 200 meters, above which, up to a level of 700 meters, the maximum of velocity occurs at 10 p.m. and the minimum at 10 a.m. However, the height of rotation may change over a wide range and in individual cases it exceeds 600 meters, depending on the intensity of the turbulence and on the wind velocity. During the cold half year the wind velocity has a more weakly expressed daily variation. The reversal of the daily course is observed approximately at an altitude of 50 meters. Starting with this altitude the minimum values are observed during the daytime hours, and the maximum ones in the late evening and night. The principal feature of the changes in the daily amplitude of wind velocity is the reversal of the sign of the daily fluctuations. On the other hand, based on the absolute value, the variations in the average amplitude with altitude are relatively small: in the summer the amplitude fluctuates from 2.7 to 1.6 m/sec, in the winter the values are somewhat smaller. The vertical profile of the wind in all seasons of the year is characterized on the average by a rapid increase in the velocity with altitude in the lower 100-meter layer, followed by a slower one, and in the layer from 500 to 800 meters there is an insignificant change in velocity. The average vertical gradients of wind velocity in the lower 100-meter layer of the atmosphere, during the cold and warm half years, reach 5 m/sec/100 m. In the 100 to 200-100 to 200-meter layer they fluctuate more frequently about 1 m/sec/100 m, and at high altitudes they are less than 1 m /sec/100 m. The extremal values of the gradient may reach 14.6 m/sec/100 m with increase of velocity with altitude in the lower 50-meter layer, and 6.2 m/sec/100 when the velocity decreases. (Extracted from author's conclusions).

Kazanskiy, A. B. and Monin, A. S.
ON THE TURBULENT REGIME IN THE SURFACE LAYER OF THE ATMOSPHERE UNDER CONDITIONS OF UNSTABLE STRATIFICATION, tr. by G. D. Heath. 8 Apr 59 [13]p. Porton Trans. no. 229; M519.
Order from LC or SLA mi$2.40, ph$3.30 59-22566

Trans. of *Akad[emiya] Nauk SSSR. Izv[estiya]. Ser[iya] *Geofiz[icheskaya] 1958 [no. 6] p. 741-751.

On the basis of experimental data and the theory of similarity for the turbulent regime in the surface layer of the atmosphere (Akad. Nauk SSSR Geofiz. Inst. Trudy no. 24(151): 163-187, 1954, a translation of which is available from LC or SLA as 59-15097), it is established that in the unstable stratification outside the thin layer of dynamic turbulence the mechanism of the intermixing of the air does not differ in practice from the mechanism of free convection. (See also 59-15097 or 59-16007)

Kolesnikova, V. N.
SOME PROPERTIES OF TURBULENT TRANSFER IN THE LOWEST KILOMETRE LAYER OF THE ATMOSPHERE, tr. by G. D. Heath. 27 Nov 58 [15]p. 14 refs. Porton Trans. no. 221; M578.
Order from LC or SLA mi$2.40, ph$3.30 59-22669

Trans. of Akad[emiya] Nauk Uz[bekskoy] SSR [Tashkent]. Izv[estiya]. Ser[iya] Fiz[iko]-Mat[ematicheskikh] Nauk, 1957, no. 3, p. 87-98.

Atmosphere gradient measurements, obtained mainly during 1955 and 1956, were treated according to the method proposed by A. M. Obukhov and A. S. Monin (Akad. Nauk SSSR Geofiz. Inst. Trudy no 24(151):

163-187, 1954: a translation is available from LC or SLA as 59-15097). Information is presented concerning the influence of temperature stratification on turbulent transfer, the diurnal variation of the turbulence characteristics, the layers that can be distinguished in the lower kilometers of the atmosphere, and stable and unstable stratification. (See also 59-22566)

ENGINEERING

DIGEST OF SOVIET TECHNOLOGY, 1960 [VOL. 1] NO. 10. Jan 60, 59p.
Order from EIS $18.00/Surface mail
$22.00/Airmail

Consists of translations on recent technological developments in the USSR and East European countries selected from periodical and non-periodical literature from these countries.

Berg, L. G. and Rassonskaya, I. S.
RAPID THERMAL ANALYSIS, tr. by G. N. Gibson. Apr 51 [3]p. Library Communication no. 556; T/L 798; M 1006.
Order from LC or SLA mi$1.80, ph$1.80 60-13709

Trans. of Akademiya Nauk SSSR. Doklady, 1950, v. 73, no. 1, p. 113-115.

For the purpose of comparing the temperatures and the nature of the effects obtained during heating at velocities of 80° to 100° per minute and 3° to 6° per minute, thermograms were obtained for different substances and minerals. The substances investigated were $CuSO_4 \cdot 5H_2O$, $MgSO_4 \cdot 7H_2O$, $NiSO_4 \cdot 6H_2O$, $Mg(OH)_2$, $NaNO_3$, KNO_3, NH_4NO_3, Na_2SO_4, napthalene, dolomite, magnesite, and clay. A comparison of the results obtained led to the following conclusions: (a) The effects of fusion and boiling appear at the same temperatures, independently of the rate of heating and give well defined horizontal areas. (b) The general character of the curves for the processes of dehydration will remain unchanged and typical of a given compound in spite of the fact that the temperatures of certain effects in the case of high rates of heating (80° to 100°/minute) are increased. The greatest deviation, amounting to 35°, was noted for the transition from $CuSO_4 \cdot H_2O$ to the anhydrous compound. (c) The phenomena of dissociation of carbonates appear at approximately the same temperatures. Dolomite is an exception; in its case, at high velocities of heating, the temperature of the first effect is considerably higher than the usual 740° to 750°, i. e. about 800°. That, however, is quite regular, as the first effect in the case of dolomite corresponds to its decomposition into the carbonates of Ca and Mg which is followed immediately by the dissociation of $MgCO_3$; at the same time, decomposition even at low velocities of heating, takes place with definite superheating, and is observed on the thermograms at temperatures from 720° to 800°. (d) The temperatures of polymorphic transformations remain unchanged at different rates of heating (KNO_3, NH_4NO_3, Na_2SO_4, K_2SO_4). The second order transformation for sodium nitrate was an exception. With rapid heating (100° per minute) that effect did not appear on the thermogram.

Engl, A.
THE USE OF AUSTENITIC STEELS IN THE NEW POWER STATION AT HÜLS. [1960]
Order from BISI £4 10s. BISITS 1514

Trans. of V[ereinigung der] G[rosskessel]b[esitzer. Mitt[eilungen] (West Germany) 1958, Aug, p. 255-264.

An account of stress-corrosion and other damage encountered in the steam system, and the grades of steel installed and recommendations made are given. (J. Iron Steel Inst. abstract)

Ignatov, N. N.
THE ENERGY CONSUMED IN THE PROCESS OF CUTTING COAL WITH MINING MACHINES (Ob Energoemkosti Protsessov Razrusheniya Ugley Gornymi Mashinami). Jan 60, 10p. RTS no. 1317.
Order from LC or SLA mi$1.80, ph$1.80 60-13475

Trans. of Ugol' (USSR) 1958 [v. 33] no. 5, p. 16-19.

Kostyanitsyn, M. N.
ON THE RELATION OF THE HYDROMETEOROLOGICAL SERVICE SUBDIVISIONS WITH INDUSTRIAL ORGANIZATIONS. 22 Jan 60, 3p. JPRS: L-1168-N.
Order from OTS $0.50 60-11192

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 9, p. 39-40.

At present it is necessary to orient the workers of the river-mouth stations toward the closest possible ties with industry. The workers of these specialized stations should be familiar with the utilization of the data of hydrological observations for selecting the sites of hydrotechnical structures and depths of dredging of harbor water areas, designing various riverbank-fortifying systems and partitioning structures, guiding ships along the tidal water crest, etc. It is necessary to be familiar with the utilization of data on salinity, temperature and chemical properties of water for drafting measures for restocking fisheries, promoting irrigation, etc. It is also necessary to be familiar with the utilization of data on the regime of meteorological elements for organizing construction operations, conducting ship loading and unloading work, using ferry and ice crossings, etc. Familiarization with these problems can be achieved both by organizing special instruction courses for the station workers and by direct consorting of station workers with production workers. The Main Administration of the Hydrometeorological Service has already commenced the organization of courses. It would be desirable if those enlisted in this undertaking were to include not only the institutes of the

Hydrometeorological Service, but also the highly qualified expert hydrotechnicians, operators and builders from the larger industrial organizations. (Extracted from the report)

Labayle-Couhat, J.
THE SOVIET NAVY, tr. by Jane Alexander.
10 June 58, 10p.
Order from LC or SLA mi$1.80, ph$1.80 59-12015

Trans. from La Revue Maritime, Editions Ozanne, Paris, 1957, Special issue no. 139, p. 1503-1513.

The USSR is unquestionably the second ranking naval power, which rank it took away from the British Navy. While the spearhead of the United States Navy is its Task Forces on large attack aircraft carriers, the USSR depends for its naval power on its submarine fleet. It occupies first place in this field.

Shimchishin, E. F.
HYDRAULIC FORMATION FRACTURING IN THE TURKMEN OIL FIELDS. [1959] 4p.
Order from ATS $7.20 ATS-20L37R

Trans. of Neftyanoye Khoz[yaystvo] (USSR) 1959, v. 37, no. 6, p. 65-67.

Aeronautical Engineering

AIRCRAFT TESTING AT TsAGI. 12 Nov 59 [5]p. 5 refs. AF 1256285.
Order from LC or SLA mi$1.80, ph$1.80 60-13198

Trans. from Soviet and other sources, 1955-59.

Gladkov, N.
SECOND PARACHUTE COMPETITIONS OF THE SOVIET AIR FORCE: WITH THE ARMY PARACHUTISTS (U Armeyskikh Parashyutistov). 4 Dec 59 [4]p. AF 1256345.
Order from LC or SLA mi$1.80, ph$1.80 60-13209

Summary trans. of Kryl'ya Rodiny (USSR) 1958, no. 12, p. 18-19.

The program of the competition is outlined, the names of the winners are listed, the progress shown with respect to the first parachute competition is reviewed, shortcomings of the competition are noted, and a number of new parachute control devices that were used in the competition are discussed.

Ivanov, A.
IMPROVISED INSTRUMENT APPROACH SYSTEM; TO THOSE FULL OF INITIATIVE ANY TASK IS WITHIN THEIR POWER (Initsiativnym--Lyubaya Zadacha po Plechu). 29 Dec 59 [3]p. AF 1256385.
Order from LC or SLA mi$1.80, ph$1.80 60-13539

Summary trans. from Sovetskaya Aviatsiya (USSR) 1955, 22 Nov, p. 2.

The organization of flights is described which took place under adverse weather conditions from a seaplane base which lacked the facilities of an instrument landing system.

Lebedev, V. B.
CALCULATION OF THE FLIGHT CHARACTERISTICS OF A SUPERSONIC AIRPLANE WITH TURBOJET ENGINES, tr. by C. M. Weber, Jr.
30 Oct 59 [17]p. 4 refs. T-120.
Order from LC or SLA mi$2.40, ph$3.30 60-13019

Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Aviatsionnaya Tekhnika (USSR) 1958, no. 4, p. 22-29.

The method is based on the comparison of the corresponding available and required values of thrust, not for a given altitude, but rather for a given value of flight Mach number. Such an approach to the solution of the problem, together with the customary assumption of a parabolic variation of C_D with C_L for a given Mach number, results in a substantial saving of calculation time with no loss in accuracy. The accuracy of calculation in a given case is entirely determined by the degree of correspondence of the assumed parabolic variation of C_D with C_L with the actual variation $C_D = f(C_L)$ for the same Mach number.

Chemical Engineering

A COMPILED REPORT OF 1958 PETROLEUM PRODUCTION AND REFINING ACTIVITIES IN CHINA. 28 Apr 59, 52p. JPRS: 689.
Order from OTS $1.50 59-11535

Contents:
1. Liberate the Shallow Oil Strata, Strive to Increase Speed. Trans. of Shih-yu K'an-t'an (Chinese People's Republic) 1958, no. 18, p. 4-5, 7-9, 12, 28, 37 and 43.
2. Plans for Improving the Octane Value of Gasoline and Fuel Oil. Trans. of Shih-yu Lien-Chih (Chinese People's Republic) 1958, no. 5, p. 1-5 and 20-22.
3. Research on Catalytic Cracking of Karamai Crude Oil of 320-570°C, Redistillation Fraction, by Chi Tsen-tu, Chiang Kuo-liang and others. Trans. of Shih-yu Lien-Chih (Chinese People's Republic) 1958, no. 5, p. 23-27 and 48-49.

KHIMIYA I TEKHNOLOGIYA TOPLIV I MASEL (USSR) 1959 [V. 4] NO. 12, P. 1-68 (Chemistry and Technology of Fuels and Oils). [1960] 1v. SOV-65-59-12-(1-17)/17.
Order from OTS $0.50, $3.00/6 mo. PB 141 060T-13
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

REPORT ON SEVERAL RESEARCH PROJECTS.
20 Jan 60, 10p. JPRS: 2159-N.
Order from OTS $0.50 60-11207

Trans. of Kao Fen Tzu T'ung Hsun (Chinese People's Republic) 1959, v. 3, no. 5, p. 297-300.

During the 1958 "Great Leap Forward," comrades of the Second Research Section of our Institute, under the leadership of the Party, began conducting research on epoxy resins, ion-exchange resins and plasticizers. In order to develop the production of these substances, we not only conducted experiments on the synthesis of resins but also prepared essential raw materials used in the synthesis; these are now being manufactured in several chemical laboratories on a small scale. This procedure has already been established as the basis for the expansion of production. In areas of utilization and evaluation, our Institute and related agencies have also established a policy of cooperation and coordination and have achieved successful results. (Extracted from the translation)

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Agafonov, A. V.
COMBINATION PLANT FOR STRAIGHT-RUN DISTILLATION OF CRUDE OIL AND CATALYTIC CRACKING OF RESIDUAL STOCK OVER A MICROSCOPICAL NATURAL CATALYST (Kombinirovannaya Ustanovka Pryamoy Peregonki Nefti i Kataliticheskogo Krekinga Ostatochnogo Syr'ya na Mikrosfericheskom Prirodnom Katalizatore). 13 Jan 60 [9]p. 1 ref. AF 1419377.
Order from LC or SLA mi$1.80, ph$1.80 60-13538

Trans. of Khimiya i Tekhnologiya Topliv i Masel (USSR) 1959 [v. 4] no. 4, p. 25-31.

See also 60-13537

Botnikov, Ya. A., Kaminer, B. B., and Teregulov, D. Kh.
SELECTION OF REFINING SCHEME FOR PROCESSING TOPPED CRUDE (K Voprosu Vybora Tekhnologicheskoy Skhemy Pererabotki Ostatochnogo Syr'ya). 13 Jan 60 [14]p. 5 refs. AF 1419374.
Order from LC or SLA mi$2.40, ph$3.30 60-13537

Trans. of Khimiya i Tekhnologiya Topliv i Masel (USSR) 1959 [v. 4] no. 5, p. 42-51.

This article is a discussion of a previous article by A. V. Agafonov, et al., which was published in the form of a report delivered at the IV International Petroleum Congress in 1955. (See also 60-13538)

Drabkin, A. Ye.
REMOVAL OF HYDROGEN SULFIDE FROM FUEL GASES BY AMINO ALCOHOL SOLUTIONS. [1959] 8p.
Order from ATS $11.50 ATS-46L36R

Trans. of Vsesoyuz[nyy] Nauch[no]-Issledovatel'-[skiy] Inst[itut po] Pererabotke Slantsev. Trudy (USSR) 1954 [v. 3] no. 2, p. 207-215.

Gritsev, N. D. and Synkov, V. G.
COMPLETION OF ELIMINATION OF PETROLEUM FROM EFFLUENTS BY FILTRATION THROUGH WOOD SHAVINGS. [1959] 3p. M 375.
Order from LC or SLA mi$1.80, ph$1.80 59-22444

Trans. of unidentified Russian mono.

Experiments established that elimination of petroleum from effluents by filtration through wood shavings is effective and efficient. The method has been perfected sufficiently to warrant its introduction for industrial purposes. Expenditure of wood shavings per cu lm of purified water is 0.3 to 0.6 kg. Cost of completion of elimination by this method is lower than the cost or elimination by reagents. Filtration of effluents through wood shavings, compressed into a layer 0.5-m thick and at a density of 120 kg/sq in. (moisture content 25%), should be carried out only vertically downwards with a continuous column of water 1-m deep above the shavings. When the shavings are changed the filter walls and grids should be washed clean of petroleum with hot water or steam.

Ho, Ping-lin.
SOME OF CHINA'S RESEARCHES ON ION-EXCHANGE RESINS. 15 Jan 60, 1/p. 15 refs. JPRS: 2149-N.
Order from OTS $0.50 60-11193

Trans. of Kao Fen Tzu T'ung Hsun (Chinese People's Republic) 1959, v. 3, no. 5, p. 210-224.

Houpeurt, A.
ANALOGUE STUDY OF THE RADIAL, CIRCULAR, TRANSIENT FLOW OF GAS IN POROUS MEDIA; APPLICATION TO THE STUDY OF NATURAL GAS RESERVOIRS. [1959] 131p. [figs. 2 tables, p. 150 omitted] 3 refs.
Order from SLA mi$6.90, ph$21.30 60-14047

Trans. of Revue [de l'']Institut Français du Pétrole [et Annales des Combustibles Liquides] (France) 1953 [v. 8] no. 4, p. 129-151; no. 5, p. 193-222; no. 6, p. 248-276.

Kolesnikov, G. S. and Frish, S. E.
FORMATION OF SCIENTIFIC BASES OF THE CHEMISTRY OF POLYMERS [AND] APPLIED SPECTROSCOPY IN CHINA. 1 Feb 60, 10p. JPRS: L-1192-N.
Order from OTS $0.50 60-11247

Trans. of Akademiya Nauk SSSR. Vestnik, 1959 [v. 29] no. 9, p. 69-75.

The first article (by Kolesnikov) is based on first hand observations made during a 3-month stay in China. The second article (by Frish) appears to be based upon an analysis of Chinese technical literature on spectroscopy as well as upon the results of the author's experience as a USSR delegate to the All-China Conference on Spectroscopy, held in November of 1958. Both articles indicate that the period of absorbing the experience of other nations is almost over and that the development of independent lines of study (especially research) has begun.

Kurokawa, Masatake and Asaoka, Nobuhisa.
HYDROGENATION OF SOLVENT-EXTRACTED OILS. I. HYDROGENATION OF EXTRACTED OILS FROM LOW-TEMPERATURE TAR. [1959] 4p. (9 tables omitted) 2 refs.
Order from SLA mi$1.80, ph$1.80 60-10073

Trans. of Kogyo Kagaku Zasshi (Japan) 1941, v. 44, no. 9, p. 737-740.

Various hydrocarbon groups (olefins, aromatic compounds, cycloolefins, naphthenes, and paraffins) and neutral oils extracted from low-temperature tar were high-pressure hydrogenated by using molybdenum oxide-sulfur (6:1) and nickel oxide as catalysts. The hydrocarbon groups were obtained by the solvent analysis method of H. Steinbrecher and H. Kuhne (Erdol u. Teer 13: 417 and 481, 1937; and Angew. Chem. 50: 233, 1937). With either catalyst the quantity and specific gravity of the oils produced and the quantity of hydrogen consumed decreased in the order of olefins, aromatic compounds, cycloolefins, naphthenes, and paraffins; the substances adsorbed onto active carbon and the quantity of light oil in the product oils increased in the same order. The molybdenum catalyst was better for the light oil-conversion of the raw material when olefins, aromatic compounds, or cycloolefins were used as the raw material, but the nickel catalyst was better when naphthenes or paraffins were the raw material. When olefin and aromatic raw materials were used, an oil with better saturation was obtained with the molybdenum catalyst. The quantity of aromatic hydrocarbons in the light oil component decreased and the quantity of saturated hydrocarbons increased in the order of aromatics, olefin, cycloolefin, naphthene, and paraffin raw materials. The quantity of naphthene hydrocarbons in fractions of below 150°C was greater by using unsaturated and aromatic hydrocarbons as raw materials; the quantity of paraffin hydrocarbons increased in the order of aromatic, olefin, cycloolefin, naphthene, and paraffin raw material oils.

Markov, L. I.
AUTOMATION IN THE PRODUCTION OF SULPHURIC ACID (O Komoleksnoy Avtomatizatsii Proyzvodstva Sernoy Kisloty). Jan 60, 12p. 1 ref. RTS no. 1046.
Order from LC or SLA mi$2.40, ph$3.30 60-15067

Trans. of Khimicheskaya Promyshlennost' (USSR) 1957, no. 3, p. 129-132.

Nadziakiewicz, Julian.
THE PROCESS OF COAL DECOMPOSITION AT CONSTANT TEMPERATURES (Przebieg Rozkladu Wegla w Stalych Temperaturach). [1959] [5]p.
Order from SLA $1.80, ph$1.80 60-14030

Trans. of Koks, Smola, Gaz (Poland) 1956 [v. 1] no. 3, p. 87-89.

Naumenko, P. V.
DEVELOPMENT OF THE MANUFACTURE OF DETERGENTS AND SYNTHETIC FAT SUBSTITUTES (O Razvitii Proizvodstva Moyushchikh Sredstv i Sinteticheskikh Zhirozameniteley). Jan 60, 20p. RTS no. 1150.
Order from LC or SLA mi$2.40, ph$3.30 60-15056

Trans. of Masloboyno-Zhirovaya Promyshlennost' (USSR) 1958, v. 24, no. 7, p. 1-9.

Perepelitsyn, A. N.
DETERMINING THE BEGINNING OF WATER INVASION OF WELLS. [1959] 2p.
Order from ATS $5.00 ATS-50L36R

Trans. of Neftyanoye Khoz[yaystvo] (USSR) 1959, v. 37, no. 6, p. 49-50.

Prodinger, W.
PENTAERYTHRITOL AND ITS COMMERCIAL MANUFACTURE. [1959] 8p.
Order from ATS $11.55 ATS-71L33G

Trans. of [Chemisches Forschungsinstitut der Wirtschaft Osterreichs. Mitteilungen] (Austria) 1949, v. 3, p. 91-94.

Zemel'man, B. Ya.
IMPROVEMENT IN EFFICIENCY OF PLANTS GASIFYING SOLID FUELS AT HIGH PRESSURES.
Feb 58, 4p. 1 ref. T. 163; M410.
Order from LC or SLA mi$1.80, ph$1.80 59-22478

Trans. of Gaz[ovaya] Prom[yshlennost'] (USSR) 1956, no. 12, p. 7-9.

The cycle of the Shchekinsk high pressure gasification plant is described. This plant uses a considerable amount of the electricity generated in the process, which makes it possible to supply gas to consumers regardless of their location with respect to the plant. Steam-oxygen blast at a pressure of 23 to 25 atm is supplied to the high-pressure gasifier. The gas obtained in the gas producer is passed at a temperature of 250° and a pressure of 20 atm through the gas cleaning equipment in order to remove suspended particles. Subsequently the gas is preheated to 600 to 650° and enters the gas turbine where it expands to a pressure approaching atm pressure, while maintaining a temperature which ensures the absence of condensation and deposition on the turbine blades of tar and other matter contained in the gas. After expansion in the turbine, the gas enters the heat exchangers where the sensible heat of the gas and the latent heat of steam and other vapors contained in the gas are utilized for generating steam required for the needs of the plant. Subsequently, the gas is cooled in stages in coolers, where first the heavier tar fractions are deposited and then the lighter fractions are condensed and withdrawn. As distinct from existing plant, however, the process of cooling, tar deposition and extraction of lighter fractions proceed at low pressures. In order to remove CO_2 and H_2S under pressure by means of existing chemical and physical methods, the gas after condensation is compressed in a gas compressor (mounted on the same shaft as a gas turbine) to a suitable pressure for the CO_2 and H_2S removal process, and is subsequently purified from the above mentioned gases in appropriate equipment. After purification, the gas is again preheated to a temperature of 600 to 650° in heat exchangers and is then expanded in a gas turbine, which drives the compressor.

Electrical and Electronic Engineering

*AVTOMATIKA I TELEMEKHANIKA (USSR) 1959, V. 20, NO. 10, P. 1313-1438 (Automatics and Telemechanics). [1960] 1v. SOV-103-20-10-(1-16)/16.
Order from OTS $0.50, $3.00/6 mo. PB 141 096T-13
Foreign $0.75, $4.50/6 mo.

Consists of abstracts in English.

COMMUNICATION LINE TECHNICAL CENTERS (LTU) IN THE USSR. 19 June 59 [28]p. (18 figs. 1 illus. omitted) 95 refs. AF 1255863.
Order from LC or SLA mi$2.70, ph$4.80 59-18423

Trans. from Soviet Open Sources, 1952-59.

This report describes the present day administrative and operational structure of the LTUs in the USSR. In addition, the subjects of maintenance and repair activities, production of overhead poles, maintenance difficulties, a list of LTUs, etc. are also discussed. Also included is a list of LTUs, showing their locations and administrative divisions. This list is extremely useful for determining whether or not a given area has overhead lines. By also obtaining information as to the type of LTU, i.e. super-class, first class, second class, etc. it is possible to determine the number of lines which are under the jurisdiction of a LTU, thereby establishing its importance. As more LTUs are located in different areas of the USSR, they will indicate the existence of additional lines and connections which at present may be unknown or merely surmised. Appended to this report is a chart showing the operational-administrative structure of a LTU and a map showing a number of LTUs found in the USSR. In addition, several photos are included illustrating equipment and various types of maintenance and repair work performed by LTUs.

DEVELOPMENT OF ELECTRIC POWER PRODUCTION IN THE CHINESE PEOPLE'S REPUBLIC.
23 Feb 59, 4p. JPRS 551-D.
Order from OTS $0.50 59-11453

Trans. of Elektrotechnika (Hungary) 1958, v. 51, no. 1/2, p. 73-74. (Reprint from *Elektrichestvo (USSR) 1957, no. 9).

In 1941, which was the best pre-revolution year with respect to electric power production, the total output was 6×10^9 kwh, or only 10 to 12 kwh per capita. In 1944, 80 percent of power plant output was owned by foreign interests, most of which (68.8 percent) represented Japanese capital. The period from 1949 to 1952 may be considered the period of reconstruction of power distribution in China. During this period 88 percent of the power plants were nationalized and 12 percent became the property of capital-state enterprises. The government drew up a 15-year power development plan for the period 1953-1967. Considerable achievements have been attained during the first years of realization of this plan. According to estimates the power output should reach 40 to 43×10^9 kwh by 1962. At the present time China is incapable of developing its electric power resources by itself. The new power plants and other electrical equipment will be shipped primarily from the Soviet Union and from the other people's democracies. Hungary also is contributing its share to the work along this line and will assist the construction of China through the shipment of several power plants. (Extracted from the report)

MICROWAVE TUBES: BIBLIOGRAPHY. 30 Oct 59 [7]p. 52 refs. AF 1256244.
Order from LC or SLA mi$1.80, ph$1.80 60-13190

Trans. from Soviet bloc open sources, 1957-59.

There are 2 listings from Bulgaria, 22 from Czechoslovakia, 5 from East Germany, 6 from Hungary, and 17 from Poland. (See also 59-22158)

RADIO COMMUNICATION CENTERS IN THE USSR: SUPPL. NO. 1; FOUR NEWLY REPORTED RADIO CENTERS. Rept. no. 9 on Main Radio Communication Facilities of the USSR. 29 Dec 59 [8]p. 26 refs. AF 1256384.
Order from LC or SLA mi$1.80, ph$1.80 60-13529

Trans. from Soviet publications 1959.

The four additional radio centers listed in this report (Chelyabinsk, Dnepropetrovsk, Gur'yev, and Nikolayev), added to the 53 radio centers listed in the initial report (59-16464), bring to 57 the total number identified as operating in the USSR. (See also 59-16964, 60-13547)

RADIO ENGINEERING, 1958, VOL. 13, NO. 12. Oct 59, 116p.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Radiotekhnika (USSR) 1958, v. 13, no. 12, p. 3-[80].

RADIO ENGINEERING, 1959, VOL. 14, NO. 2. Dec 59, 116p.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Radiotekhnika (USSR) 1959, v. 14, no. 2, p. 3-[75].

RADIO ENGINEERING, 1959, VOL. 14, NO. 3. Jan 60, 116p.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Radiotekhnika (USSR) 1959, v. 14, no. 3, p. 3-[79].

*RADIOTEKHNIKA (USSR) 1959, V. 14, (Radio Engineering) [1960]
Order from OTS $0.50, $3.00/6 mo.
Foreign $0.75, $4.50/6 mo.

No. 11, p. 3-80, PB 141 105T-14
No. 12, p. 3-81, PB 141 105T-15

Consists of abstracts in English.

TELECOMMUNICATIONS, 1958 [VOL. 12] NO. 8, P. 797-902. Oct 59, 1v.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Elektrosvyaz' (USSR) 1958 [v. 12] no. 8, p. 3-80.

TELECOMMUNICATIONS, 1958 [VOL. 12] NO. 9, P. 903-1014. Nov 59, 1v.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Elektrosvyaz' (USSR) 1958 [v. 12] no. 9, p. 3-80.

TELECOMMUNICATIONS, 1958 [VOL. 12] NO. 10, P. 1015-1119. Feb 60, 1v.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Elektrosvyaz' (USSR) 1958 [v. 12] no. 10, p. 3-80.

TELECOMMUNICATIONS, 1958 [VOL. 12] NO. 11, P. 1121-1218. Feb 60, 1v.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Elektrosvyaz' (USSR) 1958 [v. 12] no. 11, p. 3-80.

TELECOMMUNICATIONS, 1958 [VOL. 12] NO. 12, P. 1219-1333. Feb 60, 1v.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Elektrosvyaz' (USSR) 1958 [v. 12] no. 12, p. 3-76.

THE "VESNA" MULTICHANNEL SYSTEM. 9 Nov 59 [8]p. 6 refs. AF 1256273.
Order from LC or SLA mi$1.80, ph$1.80 60-13023

Trans. from Soviet open sources, 1958-59.

Bernashevskiy, G. A. and Novskova, T. A.
A BACKWARD-WAVE SPIRATRON [Spiratron s Obratnoy Volnoy]. [1959] [3]p. 6 refs. M561.
Order from LC or SLA mi$1.80, ph$1.80 59-22684

Trans. of *Radiotekhnika i Elektronika (USSR) 1958, v. 3, no. 9, p. 1218-1219.

In the experimental development of a backward-wave spiratron electron-optical systems were used similar to those of the spiratron amplifier. As the slow-wave structure, double and single helices were used. In the 10-cm. range, oscillations were observed (when tuning through the range) over a wide band, with a frequency ratio at the ends of the band greater than 2:1. The frequency of generation was uniquely determined by the helix voltage and was substantially independent of the voltage across the other electrodes. The spectrum of oscillations was monochromatic. If only the voltage across the helix connected to the anode was changed, it was possible to obtain continuous regions of generation in the same frequency band with a ratio of frequencies of the order of 1:1.3. With a simultaneous change in the opposite phases of two voltages (across the anode and across the focusing electrode) the continuous ranges of generation can be extended and a frequency ratio at the upper and lower ends of the band of the order of 1:1.7 can be obtained. The power of the high-frequency oscillations reached several tens of milliwatts with beam currents of the order of 10 ma. An output power over the band was obtained which does not vary by more than 3 to 6 decibels. Using spiratrons with slow-wave structures, having suitable parameters, oscillations were obtained in the 3-cm. and the decimetre ranges. In some spiratrons with a relatively small diameter of double helix with $ka < 0.3$ (k is the wave number in free space, a is the radius of the double helix), as well as the "basic" kind of generation described above, another form of oscillations was observed, which may be called "spiratronic." The power of these oscillations was usually 10 to 15 decibels less than the power of the "basic" kind. When it is operating in the "basic" mode, the characteristics of the backward-wave spiratron are entirely similar to the characteristics of ordinary backward-wave tubes with magnetic focusing. The second form of oscillations is peculiar to the spiratron; their frequency is somewhat higher than that of the "basic" oscillations and depends not only on the helix voltage but also on the voltages across all the other electrodes. The occurrence of the "spiratronic" form of oscillations is connected with the rotation of the electron beam in the centrifugal-electrostatic focusing system.

Braude, S. Ya., Men', A. V., and Ostrovskiy, I. Ye.
TRAVELING WAVE ANTENNA WITH CONTROLLABLE DIRECTIONS OF NULL RECEPTION.
5 Feb 59, 9p. 3 refs. JPRS: L-520-N.
Order from OTS $0.50 59-13110

Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Radiotekhnika (USSR) 1958, July/Aug, p. 415-421.

An antenna system with several controllable directions of null reception is described. An antenna with one and two controllable nulls was experimentally tested. Such an antenna permits the suppression of two radio interferences arriving from various directions, or the suppression of one interference and the bearing of some radio station. The described characteristics of the antenna system are effective in case of "surface" wave reception, and ineffective at the reception of "space" waves.

Chen, Chung-chih and Lee, Chin-lin.
NATURAL EQUIVALENT CIRCUIT AND HYBRID-PARAMETERS OF A JUNCTION TRANSISTOR.
17 Dec 59, 56p. 15 refs. JPRS: L-1972-D.
Order from OTS $1.50 60-31009

Trans. of Acta Physica Sinica (Chinese People's Republic) 1959, v. 15, no. 9, p. 475-506.

This paper studies the relationship between parameters and the elements of a natural equivalent circuit as well as the relationships between such parameters and frequency and between parameters and direct current operation conditions. (Author)

Gagin, E. N., Grebenshchikov, S. E., and Pisarev, V. E.
CERTAIN QUESTIONS OF AN ELECTRONIC ELECTROSTATIC VAN DE GRAAF GENERATOR.
[1959] 8p. 7 refs.
Order from MDF $4.00 MDF G-173

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy]. Fizika (USSR) 1959, no. 6, p. 95-101.

The research to create an electronic electrostatic generator in the P. N. Lebedev Physics Institute AN USSR was completed mostly by the end of 1956. Further efforts were directed toward perfecting the operation of its individual components. The purpose of the present note is to indicate certain specific difficulties which arose in the creation and exploitation of the electronic Van de Graaf generator. Special attention has hence been devoted to the question of high stability of the energy of the accelerated electron beam. (Authors' abstract)

Gaylish, Ye. A., Mandryka, N. A., and Medvedev, K. Ye.
MINIATURE RADIO COMPONENTS [AND] NEW CERAMIC HIGH-VOLTAGE CAPACITORS. 7 Dec 59, 24p. JPRS: L-1122-N.
Order from OTS $0.75 60-11104

Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Radiotekhnika (USSR) 1959, no. 3, p. 267-282.

Trends in the construction of radio components for mass application and certain results attained in this field are surveyed.

Khentshel', V.
SUBSCRIPTION TELEGRAPHY IN THE GERMAN DEMOCRATIC REPUBLIC. 22 Jan 60, 7p. (3 figs. omitted) JPRS: L-907-D.
Order from OTS $0.50 59-11603

Trans. of Vestnik Svyazi (USSR) 1958, no. 1, p. 31-33.

Lauhren, Folke Sture.
RADIO TELEPHONE SYSTEM FOR THE PROVISION OF TWO-WAY RADIO COMMUNICATION BETWEEN MOBILE STATIONS AND A FIXED STATION, OR BETWEEN MOBILE STATIONS THROUGH A FIXED STATION, tr. by P. C. C. 20 Nov 59, 24p. (15 figs. omitted).
Order from LC or SLA mi$2.70, ph$4.80 60-13071

Trans. of Danish patent 80,088, cl. 21a^4 - 57, pat. 30 Mar 51, granted 24 Oct 55, pub. 7 Nov 55 (appl. in Sweden 4 Apr 50).

The system is characterized in that, in order to obtain the identification of a calling mobile radio station, the fixed radio station is provided with devices which are connected to said radio station transmitter and receiver in such a manner as to be operated on receiving a call signal from a mobile radio station and thereby transmit over the fixed radio station transmitter, in succession and order, a number of numerical signals, each corresponding to a digit position in a numerical series which includes the individually assigned call signs of the calling radio stations. Each mobile radio station is provided with devices which are arranged and connected to the receiver and transmitter of the mobile radio station concerned, in such a manner that on reception of these numerical signals after a call from the mobile radio station concerned, said station is operated and transmits for each of these individual numerical signals an identification answering signal through the corresponding transmitter to the fixed radio station, if the numerical values of the received numerical signal correspond to values of the digit corresponding to the appropriate digit position in the number of the calling mobile radio station. The answering signals operate devices in the fixed radio station, which discontinue the transmission of the appropriate numerical signals with the signal values which correspond to the suitable digit in said radio station number, so that a clear identification of a calling mobile radio station can be obtained by registering in the fixed radio station the digit values of the numerical signals transmitted in connection with the call.

Parkhomenko, P. P.
LARGE CAPACITY LOGIC MACHINE FOR RELAY CIRCUIT ANALYSIS. 24 Nov 59, 5p. 5 refs.
JPRS: 2031-N.
Order from OTS $0.50 60-11082

Trans. of Akademiya Nauk SSSR. O[tdeleniye] T[ekhnicheskikh Nauk]. Izvestiya: Energetika i Avtomatika, 1959, no. 3, p. 179-180.

The principle of operation and the arrangement of a special logic machine designed for analysis of relay circuits are described. The machine was developed at the Institute of Automation and Telemechanics of the Academy of Sciences USSR, under the direction of M. A. Gavrilov. In contrast with other devices of this kind, the machine is of large capacity (which makes it possible to deal with single-cycle and multiple-cycle circuits which are being designed or have been installed). It includes manual recording and automatic printing of results, and is adapted to determine operation sequence, in time, of the circuit components, and to solve logic, as well as other problems involved in design of relay devices. In principle, the machine has no limitations as concerns capacity increase. The machine has three basic modes of operation: (1) checking of circuit with any setup of its components; (2) getting the table of connections of a multiple-cycle circuit; and (3) checking the conformance of the circuit to the specified table of connections.

Novgorodov, Ye. D. and Neparidze, N. Kh.
THE DEPENDENCE OF THE Q-FACTOR OF QUARTZ LENSES ON THEIR GEOMETRICAL DIMENSIONS [Zavisimost' Dobrotnosti Kvartsevykh Chechevits ot Geometricheskikh Razmerov] tr. by R. P. Illwitzer. 9 Dec 59, 4p. 6 refs. TG 230-T109.
Order from OTS $0.50 60-21065

Trans. of *Izmeritel'naya Tekhnika (USSR) 1958, no. 5, p. 65-[66].

Experiments with lens-shaped quartz resonators show that the Q-factor is strongly dependent on the ratio of lens diameter to radius of curvature. Formulas are presented for the optimum dimensions of a quartz lens.

Perilhou, Pierre.
PARABOLIC REFLECTOR SYSTEM (Système Réflecteur Parabolique) tr. by A. Pingell. 1959 [7]p. NRL Trans. no. 753.
Order from OTS $0.50 59-22185

Trans. of French patent 928.399, pub. 26 Nov 47, by Le Materiel Telephonique, Societe Anonyme, Paris.

The present invention concerns the systems of parabolic reflectors, in which the reflecting surfaces are cut into revolving paraboloids of the same focus or parabolic cylinders, whose right section has the same focus as the paraboloids of the system, the reflecting surfaces being noticeably limited by the intersecting curves of the paraboloid (of revolution) with a cylinder, whose right section is a parabola having the same focus as the paraboloids. At the common focus there is placed either the emitter or the receiver system. The plane of polarization of the waves is by preference in the symmetry plane of the parabolic cylinders. (Author)

Perov, G. I.
THE CALCULATION OF THE EFFECTIVE REFLECTION AREA OF A SURFACE TARGET IN THE CENTIMETER WAVELENGTH RANGE (K Voprosu o Raschëte Effektivnoy Ploshchadi Otrazheniya Poverkhnostnoy Tseli v Santimetrovom Diapazone Voln). tr. by Marcel I. Weinreich.
8 Dec 59, 5p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 SCL-T-287

Trans. of Radiotekhnika (USSR) 1956, v. 11, no. 7, p. 57-59.

We discuss here an erroneous approach to the calculation of the effective reflection area along a surface which scatters the radio waves. It is shown here that the formulas advanced in certain studies for the effective reflection area and for the directive gain of the antenna of an airplane panoramic radio locator, must be further refined. (Author)

Petrov, I. N.
THERMISTORS. 7 Jan 60 [12]p. (13 figs. omitted)
AF 1419364.
Order from LC or SLA mi$2.40, ph$3.30 60-13532

Summary trans. of mono. Poluprovodnikovyye Pribory (Semiconductor Devices) Moscow, 1957, chap. 2, sect. 5.

Information is reviewed on properties of the thermistor, types of thermistors, and the practical use of thermistors.

Rozenvasser, Ye. N., Blokh, A. Sh., and Mekler, Ya. I.
ON STABILITY OF NON-LINEAR CONTROLLED SYSTEMS: SYNTHESIS OF RELAY-CONTACT CIRCUITS; CONSTITUENTS SUFFICIENT FOR SECURING THE WORK OF RELAY-CONTACT CIRCUITS. [1959] [28]p. 8 refs. F-TS-9525/V.
Order from LC or SLA mi$2.70, ph$4.80 59-19472

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 117, no. 4, p. 582-585 and p. 609-615.

On stability of nonlinear controlled systems, by Ye. N. Rozenvasser: With the aid of the A. I. Lur'ye theorem, general stability of criteria are derived for certain nonlinear controlled systems, described by fifth and sixth order differential equations. The criteria introduced furnish the possibility of effectively solving the problem for stability "in general" of undisturbed movement of a series of automatic control systems. Synthesis of relay-contact circuits, by A. Sh. Blokh: After determining the various classes of the relay contact circuits, methods for their synthesis are described. Constituents sufficient for securing the work of relay-contact circuits: by Ya. I. Mekler: It is shown that the circuit comprising the network of any element X, operating once per cycle, is distinguished by the fact that: (1) the analytical expression of the working state of the circuits of a network will be determined by one constituent of zero of the elements, altering its state during the operation, and if the repeated operations of the elements do not evoke the necessity of influence upon any other elements outside the circuit or the need of reception of such influences from without, the operation will be switched on (switched-off) only once; and (2) the working state of the circuit is assured by 2n - 1 constituents.

Saakyan, A. E.
CONTINUOUS VULCANISATION LAY-OUT FOR CONDUCTORS AND CABLES (Agregat Nepreryvnoy Vulkanizatsii Provodov i Kabeley) tr. by R. J. Moseley. 10 June 58 [6]p. (4 figs. omitted). Trans. no. 646; M 76.
Order from LC or SLA mi$1.80, ph$1.80 59-18721

Trans. of Ministerstvo Elektrotekhnicheskoy Promyshlennosti. Raboty po Mekhanizatsii i Avtomatizatsii Narodnogo Khozyaystva (USSR) 1956, no. 2, p. 113-116.

Sokolov, A. A. and Aleksandrov, V. I.
ELECTRONIC ANALYTIC BALANCES [Elektronnyye Analiticheskiye Vesy] tr. by R. P. Illwitzer. 10 Dec 59, 6p. 3 refs. TG 230-T107.
Order from OTS $0.50 60-21062

Trans. of *Izmeritel'naya Tekhnika (USSR) 1958, no. 5, p. 24-[25].

The conversion of a mechanical equal-arm analytical balance into an electronic balance for rapid weighing of metal samples is described.

Vagapov, R. D., Dimentberg, F. M., and Serensen, S. V.
PROBLEMS OF THE DYNAMIC STABILITY OF ROTORS OF TURBO-GENERATORS (Voprosy Dinamicheskoy Prochnosti Rotorov Turbogeneratorov). 13 Apr 56 [43]p. (equations, 40 figs. omitted) M-V. Trans. no. 2164; M 62.
Order from LC or SLA mi$3.30, ph$7.80 59-18708

Trans. of Akademiya Nauk SSSR. [Otdeleniye Tekhnicheskikh Nauk]. Izvestiya, 1955, nb. 9, p. 65-106.

Topics discussed include the vibratory stress of a rotor, stationary vibrations, the influence of the vibratory motion of the supports on the deformation of a rotor, the distribution of the stresses in the most dynamically loaded parts of a rotor, the variable constituents of the stresses. The constant constituents of the stresses, the stability of a rotor during the action of variable stresses, the influence of the absolute dimensions and the non-uniformity of the distribution of the stresses on the supporting power of the components and specimens, rules of the similarity of loading and modelling, estimation of the supporting power of a rotor in connection with the stress concentrations, the absolute dimensions and the state of the surface layer, and estimation of the supporting power of a rotor in connection with the effect of contact corrosion.

Ordnance, Missiles, and Satellite Vehicles

ANTIAIRCRAFT TRAINING OF SUBUNITS (Podgotovka Podrazdeleniy k PVO). 28 Dec 59 [6]p.
AF 1256377.
Order from LC or SLA mi$1.80, ph$1.80 60-13521

Trans. of Voyennyy Vestnik (USSR) 1959 [v. 39] no. 8, p. 61-65.

NEW DEVELOPMENTS IN WAR MATERIEL. Consists of brief review of 59 articles. 20 Jan 60 [19]p.
AF 1419384.
Order from LC or SLA mi$2.40, ph$3.30 60-13541

Trans. of mono. Novoye v Voyennoy Tekhnike, pub. by Ministry of Defense, USSR, 1958.

Aleksandrov, S. G. and Fedorov, R. Ye.
ANIMAL CABIN ABOARD SPUTNIK II. 13 Jan 60 [3]p. (3 figs. omitted). AF 1419380.
Order from LC or SLA mi$1.80, ph$1.80 60-13534

Trans. of mono. Sovetskiye Sputniki i Kosmicheskaya Raketa (Soviet Sputniks and Space Rocket) Moscow, 1959, p. 119-120.

Aleksandrov, S. G. and Fedorov, R. Ye.
BIOLOGICAL STUDIES ON SPUTNIKS II AND III. 9 Dec 59 [3]p. AF 1256354.
Order from LC or SLA mi$1.80, ph$1.80 60-13205

Trans. of mono. Sovetskiye Sputniki i Komicheskaya Raketa (Soviet Sputniks and Space Rocket) Moscow, 1959, p. 157-160.

Pelterie, Robert Esnault.
PERCUSSION AND SELF-EXPLOSION MECHANISM FOR PROJECTILE, tr. by P. C. C. 21 Dec 59, 10p. (2 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13276

Trans. of French patent 1,099,062, gr. 11, cl. 4, appl. 4 Feb 54, granted 16 Mar 55, pub. 30 Aug 55.

A control mechanism for self-destroying projectiles is described utilizing balls subjected to centrifugal force resulting from the rotation of the projectile. Some of the balls are used to trigger the firing pin, others, to induce the operation thereof when, as a result of air friction, the centrifugal force drops below a determined limit, characterized by the application of a delayed rotation inertia block to control the movements of the balls and to bring some of said balls to their operative position within sufficient time to provide at the beginning of the trajectory a suitable safety range above which the projectile cannot be self-exploded.

Pokrovskiy, G. I.
THE ROUTES FROM EARTH TO MOON (Na Trassakh Zemlya). 13 Nov 59 [5]p. (1 fig. omitted) AF 1256287.
Order from LC or SLA mi$1.80, ph$1.80 60-13197

Trans. from Sovetskaya Aviatsiya (USSR) 1959, no. 244, p. 3.

Rigaud, Jean.
IMPROVEMENTS IN THE CHARACTERISTICS AND THE CONSTITUTION OF HOLLOW (OR: SHAPED) EXPLOSIVE CHARGES, tr. by F. H. B. 14 Sep 59, 17p. (18 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-19745

Trans. of French patent 1,161,445, gr. 14, cl. 3, International classification C 06 c, pat. 24 Mar 58, appl. 30 Aug 56, pub. 29 Aug 58.

The new theory of corpuscular emission, is applied to obtain an accurate definition of the rational nature and form of the explosive, facing, contents of the inner cavity, and the outer envelope.

Rostovtsev, N.
UNITED STATES ROCKET BASES IN GREAT BRITAIN (Raketnyye Bazy SShA v Anglii). 1 Dec 59 [3]p. AF 1256325.
Order from LC or SLA mi$1.80, ph$1.80 60-13203

Trans. from Sovetskaya Aviatsiya (USSR) 1959, no. 268, p. 4.

Ryabov, Yu. A.
RULES OF MOTION OF ARTIFICIAL CELESTIAL BODIES. 19 Nov 59, 16p. 2 refs. JPRS: 1021-D.
Order from OTS $0.50 60-31003

Trans. of Priroda (USSR) 1959 [v. 48] no. 8, p. 11-18.

Problems discussed include in what way must a rocket be launched in order for it to become an artificial celestial body of the solar system, what are the orbits of these bodies, under which conditions does a rocket fail to enter into orbit and return to earth, etc.

Rzhiga, O., Shakhovskoy, A., and Dubrovin, V.
OBSERVATION OF ARTIFICIAL EARTH-SATELLITE SIGNALS. 1. METHOD OF OBSERVATION 2. WORK WITH THE DIRECTION-FINDING ATTACHMENT (Nablyudeniye za Signalami Iskusstvennykh Sputnikov Zemli. I. Metodika Nablyudeniy. II. Rabots s Pelengatsionnoy Pristavkoy) tr. by David Kraus and John Miller. Oct 57 [15]p. 1 ref. JA-907, Add. 1.
Order from LC or SLA mi$2.40, ph$3.30 59-14248

Trans. of Radio [Moscow] (USSR) 1957, no. 8, p. 17-20.
Another translation of pt. 1 is available from OTS $0.50 as 59-11240 [1958] 7p.
Another translation of pt. 2 is available from OTS $0.50 as 59-11241 [1958] 3p.

Sokolov, V.
SPACE TV (Kosmicheskoye Televideniye). 14 Jan 60 [3]p. (1 fig. omitted) AF 1419383.
Order from LC or SLA mi$1.80, ph$1.80 60-13542

Trans. of Krasnaya Zvezda (USSR) 1959, 17 Dec, p. 3.

The moon rocket carried a photographic camera with two lenses for two-dimensional photography. Afterwards the film was developed, placed in a special cartridge, and telecast on command from the earth. Transmission equipment consisted of a film scanner,

photomultiplier, and transmitter. A photomultiplier consisted of a photocell and an amplifier, capable of boosting the current in the photocell billion-fold when the latter is hit by light. The photomultiplier played the role of an observer. Ground receiving stations were set in operation simultaneously with the picture broadcasting command. Receiving stations had all sorts of equipment serving the purpose of telepicture recording on film. A narrow band of reception frequencies made it possible to use magnetic tape recording with a high constancy of tape speed. This again reduced distortion to a minimum. Furthermore, cathode tubes were used to "photograph electrically" the object on the screen and retain it unchanged over a long period of time. A simultaneous use of the whole complex of recording equipment made it possible to eliminate distortions which creep into the picture through both the radio link and the recording equipment itself. Processing of all these data supplied by recording equipment resulted in photographs of the far side of the moon.

Stettbacher, Alfred.
INITIATING EXPLOSIVES. July 59, 6p. 2 refs.
Picatinny Arsenal Trans. no. 43.
Order from LC or SLA mi$1.80, ph$1.80 59-18229

Trans. of Nitrocellulose (Germany) 1940, no. 12, p. 227-229.

The initiating brisance of silver acetylide, notwithstanding its greater energy, does not quite match that of pure lead azide; acetylide begins to match the azide only in amounts starting at 1.8 g. Silver acetylide which has been precipitated from hot nitric solution appears, contrary to former reports, to be stable in storage. It is, however, impaired in air containing ammonia. (Extracted from the report)

Sanitation and Safety Engineering

CIVIL DEFENSE IN THE USSR, 1957-59. 30 Nov 59 [58]p. 126 refs. AF 1256254.
Order from LC or SLA mi$3.60, ph$9.30 60-13212

Trans. from Soviet open sources, 1957-59.

The invention of atom and hydrogen bombs and bacteriological weapons and the development of long-range bombing have brought about a new concept of total war for which no defense measures have been provided in the original civil defense program. Since any future war will involve civilian population as well as members of armed forces to a much larger degree than in any previous enemy invasion of Russia the Soviet government has made the civil defense training obligatory for every USSR adult citizen. The DOSAAF (All-Union Voluntary Society for the Promotion of the Army, Air Force and Navy) was charged with setting up the civil defense instruction program and with training the Soviet people in individual and collective means of protection. It is the purpose of this report to present new information on this subject, obtained from available Soviet open sources that have been published in the last three years, to provide an account of the degree to which the civil defense program of the Soviet Union has been implemented on the republic, oblast', rayon and primary levels since 1957, and what changes, if any, have taken place during the past three years. Despite all the shortcomings of the civil defense training program, PVO training gives the Soviet people a certain knowledge of what to expect in the event of a total war, as well as how to protect themselves from the injurious effects of the atomic, chemical and bacteriological war fares. Moreover, through its other training and sport activities, DOSAAF will enable the Soviet Union to have several millions trained or partially trained men and women who could be used in various capacities in case of emergency. (Extracted from the report)

SURVEY OF U.S.S.R. LITERATURE ON AIR POLLUTION AND RELATED OCCUPATIONAL DISEASES, VOL. 2, selected, translated and pilot copy prepared for photo-offsetting by B. S. Levine. Mar 60 [270]p.
Order from OTS $4.00 60-21188

The 44 documents are arranged chronologically within each of the following categories: (1) Methods and procedures, 12 articles, 1950-1958; (2) Carcinogenesis, radiation and air pollution, 15 articles, 1954-1957; and (3) Toxicity, effect on health and general living conditions, 17 articles, 1950-1958. A tabulation is appended which gives the maximum allowable concentrations, as established by USSR air-pollution specialists, for 30 different air pollutants that might be in the air in populated areas. (See also 60-21049)

Bliokh, S. S., Perlina, A. M., and Kozlova, N. L.
OBSERVATIONS ON THE EFFECTIVENESS OF A NEW METHOD FOR PURIFICATION OF DRINKING WATER (CONTACT CLARIFICATION). Apr 58, 4p.
C. T. S. no. 459.
Order from LC or SLA mi$1.80, ph$1.80 60-13049

Trans. of Gigiyena i Sanitariya (USSR) 1957 [v. 22] no. 1, p. 70-72.

Østdahl, Rolf.
FASTENING DEVICE FOR SPONGELIKE CLEANING ELEMENTS. 8 Dec 59, 4p. (4 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13285

Trans. of Norwegian patent 86,281, cl. 34 c - 10^{12}, appl. 18 June 54, granted 13 Aug 55, pub. 10 Oct 55.

The invention relates to a method of fastening cleaning elements of sponge material, such as rubber sponge, nylon sponge, cellulose sponge, and the like, to a handle or shaft in such a way that the sponge element can be easily removed and replaced when it is worn out, and that the fastening device does not cover any of the effective surfaces of the sponge element, so that they remain free for the cleaning operation. In two or more lateral surfaces of the sponge element deep grooves are made and a shaft is provided with a sponge holder of wire or sheet material, preferably

shaped as a closed hoop, whose passage opening has approximately the same form and size as the corresponding part of the sponge element and which encloses this sponge element along the base of the grooves. The grooves made in the lateral surface of the cleaning element, after the element is mounted in the holder, are closed by gluing or welding. The grooves are formed or subsequently treated by means of a tool whose temperature is above the melting point of the sponge material, so that the surfaces of the grooves are reinforced by a film of the material applied thereto by melting.

Shafir, A. I., Panshinskaya, N. M. and others.
THE USE OF PAPER FILTERS FOR PURIFYING VENTILATING AIR FROM VIRUSES. 9 Dec 58, 9p. (2 figs. omitted) 6 refs. JPRS: L-551-N.
Order from OTS $0.50 59-11195

Trans. of Gigiyena i Sanitariya (USSR) 1957, v. 22, no. 9, p. 3-8.

FOOD, HANDLING, AND PACKAGING EQUIPMENT

Food

Merkeshina, L. G.
THE USE OF ROENTGEN UNITS AND THE ULTRASONIC DEFECTOSCOPE IN THE SANITARY EVALUATION OF FOOD PRODUCTS. 27 Jan 59, 3p. (3 figs. omitted) JPRS: L-1439-D.
Order from OTS $0.50 59-11433

Trans. of Voprosy Pitaniya (USSR) 1958, v. 17, no. 5, p. 79-81.

To detect glass or similar foreign material in cheese, animal fats, or sausage, x-ray analysis can be effectively employed. X-ray analysis does not reveal the presence of glass splinters in bread. Attemps to use an ultrasonic defectoscope were unsuccessful: the fact is attributed to the design of the specific instrument used rather than to the method of ultrasonic analysis in general.

Rivoche, Eugene-Joel.
METHOD OF PREPARING DESICCATED FOODSTUFFS, tr. by F. H. B. 29 Jan 60, 7p.
Order from LC or SLA mi$1.80, ph$1.80 60-15544

Trans. of French patent 872,207, gr. 2, cl. 4, appl. 16 Sep 40, granted 5 Feb 42, pub. 2 June 42 (2 appl. filed by applicant in Great Britain, 16 Sep 39 and 15 Dec 39).

Volpertas, Zelmanas.
IMPROVEMENTS IN PROCESSES FOR REDUCTION OF STARCH-CONTAINING VEGETABLES TO DRY POWDER, tr. by J. C. L. 29 Jan 60, 3p.
Order from LC or SLA mi$1.80, ph$1.80 60-15542

Trans. of French patent 842,651, gr. 2, cl. 4, appl. 17 Feb 38, granted 13 Mar 39, pub. 16 June 39.

MACHINERY, FABRICATION, AND ACCESSORY EQUIPMENT

IMPROVEMENTS IN HYDRAULIC COUPLINGS, tr. by P. C. C. 24 Feb 60, 4p.
Order from LC or SLA mi$1.80, ph$1.80 60-15543

Trans. of French patent 856,487, gr. 5, cl. 3, appl. 28 Feb 39, granted 23 Mar 40, pub. 14 June 40, by Societe Michelin et Cie.

USSR INDUSTRIAL EQUIPMENT (TRANSPORTATION, CONSTRUCTION, PRODUCTION, AND POWER MACHINERY) [NO. 19, 19 FEB 60] [1960] [40]p. 84 refs.
Order from LC or SLA mi$3.00, ph$6.30 60-15449

Trans. of unevaluated information selected from Russian-language publications.

Bauman, V. A.
BASIC TRENDS OF SCIENTIFIC RESEARCH WORK REGARDING THE FUTURE DEVELOPMENT OF CONSTRUCTION AND ROAD MACHINERY. 22 Jan 60, 11p. (9 figs. omitted) JPRS: L-911-D.
Order from OTS $0.50 59-11604

Trans. of Stroitel'noye i Dorozhnoye Mashinostroyeniye (USSR) 1958 [v. 3] no. 6, p. 5-11.

Bruk, I. S.
THE USE OF AUTOMATIC DIGITAL COMPUTERS FOR ACCOMPLISHING DESIGN WORK. 27 Nov 59, 28p. JPRS: 2028-N.
Order from OTS $0.75 60-11092

Trans. of Akademiya Nauk SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izvestiya: Energetika i Avtomatika, 1959, no. 3, p. 141-150.

Presented at the general meeting of the Department of Technical Sciences of the Academy of Sciences USSR, 23 December 1958.

Bychkov, A. G.
THE GENERAL LAWS GOVERNING THE VARIATION OF THE AERODYNAMIC CHARACTERISTICS OF CENTRIFUGAL MACHINES WITH VOLUTE CASINGS (Obshchiye Zakonomernosti Izmeneniya Aerodinamicheskikh Kharakteristik Tsentrobezhnykh Mashin So Spiral'nymi Kozhukhami).
Nov 59, 42p. 13 refs. RTS no. 1081.
Order from LC or SLA mi$3.30, ph$7.80 60-13178

Trans. of Promyshlennaya Aerodinamika (USSR) 1958, no. 10, p. 77-110.

Fuchs, Ludwig.
CONTINUOUSLY OPERATED CENTRIFUGE WITH PERIODIC FILLING AND EMPTYING, tr. by C. P.
24 Feb 60, 4p. (1 fig. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15540

Trans. of Austrian patent 34,197, cl. 82 b, appl. 1 July 1907, pat. 1 Apr 08, pub. 25 Aug 08.

Fuchs, Ludwig.
DRUM CONSISTING OF ANGLE RINGS AND JACKET RINGS FOR CONTINUOUSLY OPERATING CENTRIFUGES, tr. by C. P. 23 Feb 60, 4p. (4 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15548

Trans. of German patent 217585, cl. 89 f, gr. 4, pat. 9 Feb 1909, pub. 5 Jan 10.

Kryanin, I. R.
SCIENTIFIC ACHIEVEMENTS OF TsNIIMASh IN THE FIELD OF THE MATERIALS AND TECHNOLOGY OF MACHINE BUILDING. 22 Jan 60, 13p. (10 figs. omitted) JPRS: L-976-D.
Order from OTS $0.50 59-11619

Trans. of Metallovedeniye i[Termicheskaya] Obrabotka Metallov (USSR) 1957, no. 11, p. 56-65.

Discussions are presented on new machine-building materials, methods and means of the examination and control of the quality of materials, technology of machine building, and methods of increasing the durability of machine parts.

Klirzel, Gustav.
WASHING MACHINE, PARTICULARLY FOR DOMESTIC USE, tr. by C. P. 13 Nov 59, 21p. (3 figs. omitted).
Order from LC or SLA mi$2.70, ph$4.80 60-13078

Trans. of German patent 859597, cl. 8d, gr. 9-60, pat. 16 Oct 41, appl. announced 10 Apr 52, granted 23 Oct 52, pub. 15 Dec 52 (8 May 45 to 7 May 50 not counted in life of patent, law of 15 July 51) by Siemens-Schuckertwerke Aktiengesellschaft, Berlin and Erlangen.

CHINESE DIESEL ENGINE SERIES. 1 Apr 59, 30p. 5 refs. JPRS: 1443-N.
Order from OTS $1.00 59-13398

Trans. of Ch'i-ch'e Yu T'o-la-chi [sic] (Chinese People's Republic) 1958, no. 12, p. 5-11.

SUPPORTING ARRANGEMENT FOR HOLDING VEHICLE ENGINE HOODS OPEN, tr. by P. C. C. 23 Nov 59, 4p. (6 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13074

Trans. of French patent 1,082,151, gr. 10, cl. 1, appl. 5 Aug 53, granted 16 June 54, pub. 27 Dec 54, by Etablissements Saintagne.

The supporting arrangement which forms the object of the invention is more particularly designed to be adapted to the hoods of conventional rear engine cars and comprizes essentially two suitably spaced and braced arms, one end of each of which is pivoted by a special device on the hood lock or closing rod. The free ends of said arms are fixed in the hood locking catches provided on the vehicle body when said hood is open to provide appropriate cooling. This supporting arrangement remains folded in position on the hood when not in use to improve cooling. It is therefore available whenever required. It is maintained in the inoperative position by the engagement of the brace member which connects the two arms of the support with any suitable locking device. (Extracted from the report)

Gil'zin, K.
THE RELIABILITY OF ROCKET SYSTEMS (O Nadezhnosti Raketnykh Sistem). 1 Dec 59 [4]p. AF 1256331.
Order from LC or SLA mi$1.80, ph$1.80 60-13202

Trans. from Sovetskaya Aviatsiya (USSR) 1959, no. 227, p. 4.
Another translation is available from LC or SLA mi$1.80, ph$1.80 as 60-10739, 18 Nov 59, 4p.

Only absolute reliability and freedom from failure of any given part, of any given element, even the smallest and most insignificant, can constitute the basis of success. But of course nothing is "absolute", and for that reason there is no such thing as hundred percent success in rocket launching. Thus, according to the attestations of that same American press, almost half of the military ballistic missiles tested in the USA blow up, get off course and misfire. In 95 firings of long and medium range ballistic missiles in the USA, 42 of the tests ended in total or partial failure (there are circumstances when a "partial" failure differs in no way from a total failure). Two of the latest failures of this kind which were reported in the American

press occurred after the flight of our "lunik". In 14 of 22 attempts to launch artificial satellites, the satellites failed to go into orbid. Only one attempt out of five to launch rockets into outer space was successful (and even then only partially). One or another "trifle" proved to be fatal. The American scientists have not as yet been able to overcome this "reliability barrier". Without absolute certainty of success, without firm confidence in the reliability of the entire rocket system and each one of its parts, no attempt at launching should be made. This faith in their ability, in the reliability of their technology, the Soviet scientists, technicians and workmen have gained through persistent work, by overcoming difficulties, and by searching for the best, the only dependable solutions. This attests to the maturity of Soviet rocket technologists, whose work has received recognition and high evaluation not only in our country, but also in the entire world. (Extracted from the report)

Gil'zin, E.
PRESENT DAY ROCKET DROMES (Sovremennyye Raketodromy). 14 Jan 60 [4]p. AF 1419381.
Order from LC or SLA mi$1.80, ph$1.80 60-13533

Trans. from Sovetskaya Aviatsiya (USSR) 1959, 26 Nov, p. 4.

The Cape Canaveral testing grounds are described as an example of a rocket drome intended for research and testing. Surface launchers for Atlas rockets are described as an example of a launching ground for strategic missiles. Underground and underwater launchers are briefly noted.

Kupryashin, N. N.
ANALYTICAL DETERMINATION OF THE COEFFICIENT OF DISK FRICTION IN THE TURBULENT REGION. [1959] 8p.
Order from ATS $11.80 ATS-75L36R

Trans. of Energomashinostroyeniye (USSR) 1958, v. 4, no. 8, p. 17-19.

Nechayev, Yu.
ENGINES FOR SPACE SHIPS (Dvigateli Kosmicheskikh Korabley). 8 Dec 59 [5]p. (1 fig. omitted) AF 1256351.
Order from LC or SLA mi$1.80, ph$1.80 60-13206

Trans. from Sovetskaya Aviatsiya (USSR) 1959, 9 Oct, p. 4.

Requirements are discussed in popular language.

Sviridov, Yu. B.
ON THE PROCESSES OF IGNITION AND COMBUSTION IN COMPRESSION IGNITION ENGINES, tr. by R. E. Daisley. [1959] [41]p. 6 refs. Trans. 1008; M 328.
Order from LC or SLA mi$3.30, ph$7.80 59-19183

Trans. from Conference on Piston Engines, Moscow, 1956. Proceedings.

A diesel bomb with which it was possible to vary the turbulence intensity of the charge on injection and the fuel pump speed while preserving the characteristics of fuel injection was used to investigate the effect of physical, chemical and turbulence factors on the processes of ignition and combustion. About 600 experiments were carried out, with recording of the indicator diagrams. With an increase in the intial temperature of the medium the ignition delay is reduced smoothly. At about 600° to 700°K there is an abrupt decrease in combustion duration, sometimes accompanied by intense knock, and increase or decrease of temperature leads to protraction of the combustion process. At low temperatures increase of pressure, accompanied by proportional weakening of the mixture, causes an increase of ignition delay and protraction of the combustion process. At high temperatures increase of pressure reduces the ignition delay but protracts the combustion process, which is evidently connected with an increase of nonuniformity in the charge. At medium temperatures neither ignition delay nor combustion duration depend on temperature, although the combustion duration is in this case very small. Variation of the amount of fuel injected has a strong influence on ignition delay only at low temperatures (in kinetic region) and has practically no effect at medium and high temperatures. An increase in the intensity of the hydrodynamic condition of the charge in the combustion chamber accelerates the ignition process, reduces the combustion time at high temperatures (diffusion region) and does not accelerate it at low temperatures (kinetic region). Increase in the fuel (for rest of abstract see TT, v. 3, p.) pump speed, which improves the quality of mixing and atomization and intensifies the small-scale turbulence of the medium, reduces the ignition duration at high temperatures (in the diffusion region) and has no noticeable effect on the ignition duration at low temperatures. On varying this parameter the combustion duration remains constant.

Machine Parts and Mechanisms

TECHNOLOGICAL NOVELTIES; A NEW SAWING TECHNIQUE (Technische Neuhsiten: Eine Neuse Sägetechnik). [1959] [5]p. (5 figs. omitted) 4 refs. Trans. no. 2653.
Order from SLA mi$1.80, ph$1.80 60-14131

Trans. of Holz-Zentralblatt (West Germany) 1954, v. 80, no. 136, p. 1602.

The technique is based on the new design of Axel Lundberg for shaping the saw tooth. Lundberg saws give an exceptionally smooth cut: subsequent planing

Beyzel'man, R. D. and Tsypkin, B. V.
ROLLER BEARINGS. [1959] 4p.
Order from MDF $1.00 MDF B-136

Partial trans. (table of contents and forward) of Russian mono. 1954, 3rd ed., 441p.

Eklund, Elias Napoleon.
IMPROVEMENTS IN VISES FOR MACHINE-TOOLS, tr. by C. P. 14 Dec 59, 13p. (4 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 60-13277

Trans. of French patent 1,153,593, gr. 5, cl. 4, appl. 6 June 56, granted 7 Oct 57, pub. 12 Mar 58 (appl. in Sweden filed 30 June 55 in name of applicant) by Aktiebolaget E. N. Eklunds Mekaniska Verkstad, Sweden.

Gersdorfer, Otto.
SLEEVE BEARINGS FOR ABSORPTION OF END THRUSTS (Gleitlager zur Augnahme von Axialdrücken). [1959] [23]p. (foreign test included) 1 ref.
Order from SLA mi$2.70, ph$4.80 59-20989

Trans. of Maschinenwelt und Elektrotechnik (Austria) 1956, v. 11 [no. 5/6] p. 63-67.

Today's state of development permits an individual as well as an assembly line construction of thrust bearings of high quality. Difficulties opposing a wider application with respect to production of hydrodynamically effective wedge spaces (baffle spaces) and decrease of the cant danger can be considered to be surmounted. This opens a way to provide shafts which are stressed by axial stresses with journal bearings in a simpler and more convenient manner and thus satisfy today's requirements of a quiet noise-free operation with a long service life. (Author) (Machinery--Machine Parts)

Hajek, S.
PROPERTIES OF STEEL FOR COLD PRESSING OF BOLTS. [1960].
Order from BISI £5 10s. BISITS 1524

Trans. of Hutnik (Czechoslovakia) 1957 [v. 7] no. 4, p. 116-122.

The manufacture of various machine parts, especially bolts, by cold pressing has greatly expanded in Czechoslovakia owing to its economy and efficiency and competes successfully with the old manufacturing technique of hot forming and machining. For the time being bolts in this country are manufactured by cold pressing over 16mm diameter only, while in other countries up to 24mm diameter. (Author)

Stepanyuk, N. V.
METHOD OF BRASS-PLATING THE SURFACE OF STEEL PARTS. [1959] 2p.
Order from ATS $5.00 ATS-90L31R

Trans. of Russian patent 105, 697 (appended to a Certificate of Authorship) filed 19 July 55 under no. 4678/454, 452/22.

Tlusta, D.
IMPROVEMENTS IN THE QUALITY OF STEEL CSN 12 040 FOR COLD FORMED SCREWS. [1960].
Order from BISI £6 15s BISITS 1345

Trans. of mono. Vyzkumne Prace z Oboru Zeleza a Oceli, Prague, 1958, p. 173-188.

The required properties of steel for cold formed screws. Improvements in the homogeneity, purity and in the mechanical properties of open-hearth steel produced with oxygen blast. Economical assessment of the manufacture of screws from oxygen-enriched steel. Comparison with normal open-hearth steel. The effects of the wire rolling method on the quality of cold-formed screws. Comparison of wires rolled with various sizings. (Author)

Manufacturing Equipment and Processes

USSR ELECTRONIC AND PRECISION EQUIPMENT [NO. 19, 26 FEB 60]. [1960] [27]p. 81 refs.
Order from LC or SLA mi$2.70, ph$4.80 60-15525

Trans. of unevaluated information selected from Russian-language publications.

USSR MATERIALS AND MATERIALS PROCESSING EQUIPMENT [NO. 19, 8 MAR 60]. [1960] [47]p. 107 refs.
Order from LC or SLA mi$3.30, ph$7.80 60-15600

Trans. of unevaluated information selected from Russian-language publications.

Adasinskiy, S. A.
COOLING OF THIN STEEL SHEETS IN SPOT WELDING. Feb 57 [10]p. 4 refs. TR/3; M 577.
Order from LC or SLA mi$1.80, ph$1.80 59-22670

Trans. of Svarochnoye Proizvodstvo (USSR) 1955, no. 8, p. 6-8.

The process of temperature equalization in spot welding depends on the temperature distribution at the instant of switching off the current, which is primarily governed by the duration of heating. Thus, e.g., when the electrodes remain clamped after the end of heating for a negligible period of time, the cooling rate of 1.5 mm thick sheets in the temperature interval 700 - 500° reaches 400 °C/sec under hard welding conditions (7000 A, 0.3 sec.), and drops to 250°C/sec. under soft welding conditions (5300 A, 1.3 sec). When the electrode clamping time after welding is increased from 0.02 to 3 seconds, the cooling rate of

the weld-adjacent zone steeply increases (from 400 to 2000 °C/sec. in the temperature interval 700 - 500°). Immediately after the current is switched off, high cooling rates are observed in the weld-adjacent zone, even when the electrodes are released as quickly as possible; these cooling rates are related to temperature equalization across the thickness of the sheets. In the spot welding of sheets the process of cooling of the metal in the weld adjacent zone at temperatures below 900 - 800° can be calculated assuming a normal circular heat source. When calculating the temperature immediately after switching off the current, a correction must be introduced to compensate for temperature equalization across the thickness of the sheets. (Author's conclusions)

Asnis, A. E.
THE REASONS FOR THE REDUCED FATIGUE STRENGTHS OF WELDED JOINTS IN LOW ALLOY STEELS, tr. by J. H. Dixon. Mar 59 [15]p. (1 fig. omitted) 12 refs. TR/11/59; M 595.
Order from LC or SLA mi$2.40, ph$3.30 59-22653

Trans. of mono. Paton Commemoration Volume [Moscow] 1956, p. 310-318.

Chen, Ta-lun.
CHANGES IN OUR (COMMUNIST CHINA'S) INDUSTRIAL CONTROL. 2 Apr 59 [9]p. AF 1255678.
Order from LC or SLA mi$1.80, ph$1.80 59-16431

Trans. of Ching-chi Yen-chiu (Chinese People's Republic) 1958, no. 3, p. 29-38.

Ciccalè, Carlo.
CHUCK WITH MOBILE JAWS, SUITABLE FOR THE CLAMPING OF OBJECTS EVEN WITH NON-PARALLEL FACES, tr. by C. P. 30 Nov 59, 3p. (1 illus. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13081

Trans. of Italian patent 546380, cl. IV, appl. 15 Nov 55, granted 18 July 56, printed Dec 57.

The object of the present invention is a chuck with articulated jaws one of which is rotatable about a vertical axis and the other about a horizontal axis. The mobile jaw, by means of an articulated joint, can rotate about a vertical axis and adapt itself, therefore, to the face of the object to be clamped. The fixed jaw permits analogous movement, rotating about a horizontal axis. By means of clamps it is possible to fix the two articulated joints in such a way as to make the chuck function like a normal chuck with parallel faces.

Fal'kevich, A. S., Mazel', A. G. and others.
THE AUTOMATIC SUBMERGED-ARC-OVERHEAD WELDING OF PIPES (Avtomaticheskaya Svarka Pod Flyusom Trub v Potolochnom Polozhenii). Jan 60, 11p. RTS no. 1197.
Order from LC or SLA mi$2.40, ph$3.30 60-15062

Trans. of Svarochnoye Proizvodstvo (USSR) 1958, no. 11, p. 19-23.

Gion, L.
SINTERED ALUMINA CUTTING TOOLS. I. THEORY. [1960]
Order from BISI £4 10s. BISITS 1558

Trans. of Silicates Industriels (Belgium) 1958 [v. 23] May, p. 241-247.

Theory of sintering: examination of the accepted theories: influence of the processes of diffusion and pseudo-plastic deformation: role of mineraliser additions. (Author)

Grabin, V. F. and Gurevich, S. M.
ELECTRON MICROSCOPE EXAMINATION OF WELDS IN TITANIUM, tr. by J. H. Dixon. Feb 59 [8]p. 3 refs. TR/8/59; M 592.
Order from LC or SLA mi$1.80, ph$1.80 59-22656

Trans. of Avtomaticheskaya Svarka (USSR) 1958 [v. 11] no. 2, p. 37-41.

A weld metal of industrially pure titanium containing normal quantities of the basic impurities has the laminated acicular structure characteristic of α'-phase. The needle thickness increases markedly with increase in the energy consumed per unit length of weld. Contamination of a titanium weld by nitrogen results in the appearance of serrated laminations, and in the appearance of a wide inter-lamination boundary layer. Oxygen in the weld metal promotes the formation of a coarse acicular structure with a clearly defined orientation of the Widmanstätten pattern. The hydrides in welds revealed during electron microscope investigation are as a rule located at the needle boundaries. The addition of carbon to a weld is accompanied by the formation of carbides, which may be isolated, or in interrupted chains (for weld metal carbon contents of about 0.5%) or in the form of continuous and very extensive dendritic inclusions (with weld metal carbon contents exceeding 0.8%). (Authors' conclusions)

Lazarev, B. I.
ELECTRODES FOR WELDING HEAT RESISTING TUBE STEEL 1Kh18N12T, tr. by M. deO. Tollemache. Mar 59 [15]p. 1 ref. TR. 17/59; M 589.
Order from LC or SLA mi$2.40, ph$3.30 59-22658

Trans. of Svarochnoye Proizvodstvo (USSR) 1958, no. 5, p. 8-11.

TsT-15 electrodes are serviceable for welding in all welding positions, and may be recommended for welding heat-resisting austenitic steels, intended for prolonged operation at temperatures up to 650°C. The mechanical properties of the deposited metal at room temperature after tempering at a temperature of 750°C for a period of 10 hours, should be as follows: yield point $\geqslant$ 32 kg/sq. mm., ultimate tensile strength $\geqslant$ 60 kg/sq mm, elongation (L = 5d) $\geqslant$ 24%; impact strength $\geqslant$ 4 kg. m/sq cm. (Author's conclusions)

Lyubavskiy, K. V. and Toropov, V. A.
THE FORMATION OF HOT CRACKS IN THE ARC-WELDING OF AUSTENITIC STEELS, tr. by J. H. Dixon. Mar 59 [27]p. 22 refs. TR/9/59; M 594.
Order from LC or SLA mi$2.70, ph$4.80 59-22654

Trans. of mono. Paton Commemoration Volume [Moscow] 1956, p. 117-134.

The tendency of weld metals to hot cracking was shown to depend on the concentration of segregating elements (carbon, sulphur, phosphorus, etc.) in the weld pool. The degree of solubility in the crystallizing phases of the elements present in the weld pool, which are liable to segregate with the formation of relatively low-melting eutectics, also has a material effect on the proneness of the weld metal of hot cracking. Certain ferrite-forming elements which possess low solubility in austenite and are capable of forming relatively low-melting eutectics, may cause hot cracking in austenitic welds. δ-Ferrite is able to dissolve higher concentrations of certain elements (Nb, Si, V, P, etc) than the γ-solution (austenite). This reduces the segregation of the elements and results in lower concentrations of them along the crystalline boundaries in the form of relatively low-melting eutectics. Weld metals with a composition, according to the structural diagram, corresponding to the boundary zone between austenite and ferrite-austenite regions enabling δ-ferrite to form during crystallization can have their hot cracking tendency reduced by variation in the nickel content. If an increase in the nickel content eliminates the δ-ferrite during weld metal crystallization, the weld becomes considerably more prone to the hot cracking caused by certain ferrite-forming strengthening elements and also by phosphorus. The effect of sulphur on the hot-cracking tendency of austenitic welds, both those containing ferrite phase and those not containing it, alters materially with relation to the weld metal manganese and nickel concentrations. Increase in the weld metal manganese concentration markedly reduces its proneness to hot cracking. Silicon and niobium, which have low solubility in austenite and which are capable of forming relatively low-melting eutectics with nickel, cause hot cracks in fully austenitic welds. The presence of a certain amount of ferrite phase (primary ferrite) in austenitic welds prevents the formation of the hot cracks caused by silicon and niobium. The influence of vanadium is exerted in a similar way.

Medovar, B. I.
THE MECHANICS OF THE FORMATION OF HOT CRACKS IN THE WELDING OF CHROMIUM-NICKEL-NIOBIUM AUSTENITIC STEELS, tr. by J. H. Dixon. Mar 59 [18]p. 26 refs. TR/10/59; M 596.
Order from LC or SLA mi$2.40, ph$3.30 59-22652

Trans. of mono. Paton Commemoration Volume [Moscow] 1956, p. 150-161.

The main cause of hot cracking when welding austenitic chromium-nickel-niobium steel is the presence of niobium in the welds. Niobium exerts an unusual influence on the proneness of welds to hot cracking. With increase in the niobium content from 0.2 to 0.3%, the hot-shortness of a weld rises continuously, reaching a maximum at 0.6 to 0.8% Nb; it is then completely eliminated on increasing the niobium concentration above 1%. This behavior of niobium may be explained by its capacity for altering the weld pool crystallization "effective interval", forming complex low-melting eutectic compounds in it with iron, nickel, carbon, silicon and sulphur, and also by the fact that niobium is a ferrite-forming element. The first property of niobium, that of creating the conditions under which hot cracks form in austenitic welds, is displayed at low niobium contents. The elimination of hot cracks with an increased niobium content is explained by the breakdown of the weld microstructure under the operation of the laws of eutectic crystallization, and owing to the appearance of primary ferrite rich in niobium. It is possible that the lack of cracks in welds containing niobium is also governed by filling in ("closing up") of the interdendritic interstices by an eutectic liquid. (Author's conclusions)

Navrotskiy, D. I.
THE DETERMINATION OF THE TANGENTIAL STRESSES IN BUTT WELDS, tr. by J. H. Dixon. Mar 59 [13]p. 2 refs. TR. 22/59; M 622.
Order from LC or SLA mi$2.40, ph$3.30 59-22627

Trans. of [Politekhnicheskiy Institut, Leningrad]. Trudy (USSR) 1957, no. 189, p. 58-67.

Equations are given for determining the tangential stresses under inclined-plane reinforcement; these equations may also be used when determining the stress concentrations. The relationships prove that with an inclined reinforcement the concentration of stresses is considerably less than with a rectangular reinforcement. Reduction in the initial depth of the reinforcement and increase in its length reduce the stress concentrations in butt welds.

Palamarchuk, Ye. M.
ROLL WEAR IN STRIP ROLLING MILLS (Iznos Valkov Nepreryvnykh Listovykh Stanov). May 58, 9p. 4 refs. C. T. S. no. 463.
Order from LC or SLA mi$1.80, ph$1.80 60-13222

Trans. of Stal' (USSR) 1957 [v. 17] no. 10, p. 929-933.

Pamfilov, A. V. and Morgart, R. M.
THE CAUSE OF BRIGHTNESS OF ELECTROLYTIC NICKEL DEPOSITS. [1959] 7p.
Order from ATS $8.95 ATS-14L37R

Trans. of *Zhur[nal] Priklad[noy] Khim[ii] (USSR) 1959, v. 32, no. 5, p. 1066-1071.

Portnoy, N. D. and Heinrichsdorf, H. G.
THE PREVENTION OF CRACKING IN THE WELDING OF AMTs ALUMINIUM ALLOY, tr. by J. H. Dixon. Mar 59 [11]p. 5 refs. TR. 16/59; M 588.
Order from LC or SLA mi$2.40, ph$3.30 59-22659

Trans. of Svarochnoye Proizvodstvo (USSR) 1957, no. 10, p. 16-18.

The AMTs alloy is only easily weldable without cracking where the parent metal contains over 0.25% of iron and 0.20% of silicon. The upper limit for the iron and silicon contents is governed by the reductions in the bend angles and impact strengths of welded joints. With the small amounts of iron and silicon contained in the AMTs alloy (less than 0.25% of each), to prevent cracks from forming in welds it is necessary to use type AN-A1F flux and type A1F electrode coating, both of which contain ferrosilicon. (Author's conclusions)

Syunov, N. S. and Sergeyev, M. A.
THE SELECTION OF THE BASIC PARAMETERS FOR CONDENSER FLASH-BUTT WELDING, tr. by J. H. Dixon. Mar 59 [10]p. 3 refs. TR. 19/59; M 587.
Order from LC or SLA mi$1.80, ph$1.80 59-22660

Trans. of Svarochnoye Proizvodstvo (USSR) 1955, no. 12, p. 4-6.

Tselikov, A. I.
TECHNICAL DEVELOPMENT AND AUTOMATION IN STEEL MILL CONSTRUCTION (Puti Tekhnicheskogo Razvitiya i Avtomatizatsii v Stanostroyenii). [1959] [16]p. (foreign text included). M 614.
Order from LC or SLA mi$2.40, ph$3.30 59-22634

Trans. of Vestnik Mashinostroyeniya (USSR) 1958 [v. 38] no. 11, p. 40-46.

In order to accomplish the 2.4- to 3.3-million-ton/year increase of rolled stock for the next 15 years as required by the directives of the Central Committee of the Communist Party of the Soviet Union (as announced by N. S. Krushchev at the jubilee session of the Supreme Council of the USSR), consideration is given here to (1) ways to increase the degree of mechanization and automation of secondary operations during the manufacture of rolled stock and tubes, (2) the application of more progressive technology, (3) means of speeding up the working processes in the production of rolled stock and tubes, (4) mills for the production of economical profiles of rolled stock, (5) the development of mill building for machine-building purposes, (6) improvement of the accuracy of rolled stock and tubes, and (7) lowering of man hours in mill building.

Vaynboym, D. I.
A METHOD OF ELECTRIC ARC WELDING OF STUDS. [1959] 2p.
Order from ATS $5.00 ATS-19L32R

Trans. of Russian patent 105, 243 (appended to a Certificate of Authorship no. 103, 306) filed 5 May 56 under no. 551, 196, by G. S. Volkov.

Wegrzyn, J.
PROBLEMS RELATED TO THE HOME PRODUCTION OF FLUXES AND WIRES FOR SUBMERGED ARC WELDING AND SURFACING. [1960].
Order from BISI :4 10s BISITS 1337

Trans. of Przeglad Spawalnictwa (Poland) 1957 [v. 9] Mar, p. 82-84 (Abridged from Przeglad Spawalnictwa (Poland) 1955 [v. 7] no. 1, p. 7-12).

A review of the composition of acid and alkaline manganese-free fluxes and of fluxes with Mn, with and without CaF_2, and of the production of these fluxes by the Welding Institute. (J. Iron Steel Inst. abstract)

Zaruba, I. I., Potap'yevskiy, A. G., and Porubinovsky, A. I.
AUTOMATIC WELDING OF THIN STEEL IN CARBON DIOXIDE [AND] WELDING THIN SHEET METAL BY SPOT WELDING IN A PROTECTIVE ATMOSPHERE OF CO_2. [1959] [10]p. 8 refs. M 999-M 1000.
Order from LC or SLA mi$1.80, ph$1.80 60-13703

Trans. of Avtomaticheskaya Svarka (USSR) 1957 [v. 10] no. 3(54), p. 22-27 and no. 6(57), p. 99-102.

The technology of automatic welding of thin steel marks St-3 and IKh18N-9T in carbon dioxide is described and results are given of mechanical and corrosion tests of the welded seams. Lap joints in thin metal mark St. 3 can successfully be spot welded electrically in carbon dioxide. Welding can be carried out with thin wire 0.8 to 1.0 mm in diameter, marks Sv-10GS according to GOST 2246-54 or M1 according to ChMTU-5104. The study of the process of excitation of the arc in welding with thin wire 0.8 to 1.0 mm in diameter in CO_2 showed that the arc discharge could with success be enacted with continuous feed of the electrode to the article without reversing the wire or previously short circuiting the electrode.

Transport, Traction and Hoist Facilities

AUTOMOBILE ZIL-164, tr. by Tetsua Ihara. [1959] 21p. (1 fig. omitted) H 3332.
Order from OTS $0.75 59-21142

Trans. of mono. Avtomobil' ZIL-164, Moscow, 1958.

A short description is given of the construction of the ZIL-164, and basic rules for the care and use of the vehicle are summarized.

FLAT CAR UTILIZABLE FOR THE TRANSPORTATION OF VEHICLES, tr. by C. P. 11 Jan 60, 7p. (4 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15094

Trans. of French patent 1,175,883, gr. 3, cl. 4, appl. 5 June 57, granted 17 Nov 58, pub. 2 Apr 59, by Societe Nouvelle des Ateliers de Venissieux.

GOVERNMENT PRODUCED AUTOMOBILES (Kuo Chang Ch'i-Ch'eh) tr. by Elwood Glenn. [1959] 5p. H-3327.
Order from LC or SLA mi$1.80, ph$1.80 59-19234

Trans. of [Ch'-Ch'e] (Chinese People's Republic) 1958, Nov, p. 18.

Two experimental passenger cars (4 cylinders, 55 HP and 2 cylinders, 43 HP respectively) have been designed and built by students at T'ien Chin University. Students at Ching Hua University designed and bulit a 1 cylinder car (4 HP) which can utilize either gasoline or alcohol. Various trucks (some of which use charcoal as fuel) have been constructed by vehicle repair shops. A "cross country vehicle" with fiberglass and plastic body is described, as well as a plastic 16 ton diesel engine bus which carries 140 [sic] passengers.

IMPROVEMENTS IN TELESCOPIC SHOCK ABSORBERS FOR VEHICLES, tr. by J. C. L. 7 Jan 60, 3p. (3 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15092

Trans. of French patent 1,059,988, gr. 10, cl. 1, appl. 24 Apr 52, granted 18 Nov 53, pub. 30 Mar 54, by Societe a Responsibilite Limitee dite: S. A. F. A. L

MOTORCARS MADE IN CHINA (Kuo Chan Chi Che) tr. by Elwood Glenn. [1959] [5]p. H-3326-A.
Order from OTS $0.50 59-21168

Trans. of unidentified article from Ch'i Ch'e (Chinese People's Republic) p. 33, n. d.

PLASTIC AUTOMOBILES (Po Li Kang Tsao Ch'i Ch'e) tr. by Carl Smith. [1959] [3]p. H-3326-B.
Order from OTS $0.50 59-21169

Trans. of unidentified article from Ch'i Ch'e (Chinese People's Republic) p. 36, n. d.

TRANSPORTATION, COMMUNICATIONS, AND ELECTRIC POWER IN THE USSR [NO. 25, 19 FEB 60]. [1960] [56]p. 57 refs.
Order from LC or SLA mi$3.60, ph$9.30 60-15450

Trans. of unevaluated information selected from Russian-language publications

Anokhin, V. I.
MOTOR VEHICLE CONSTRUCTION IN THE USSR [AND] CHARACTERISTICS OF MOTOR VEHICLES, tr. by S. E. [1959] [11]p. (13 figs. omitted) 2 refs. H-2952.
Order from OTS $0.50 59-21032

Trans. of mono. Ustroystvo Avtomobiley (Construction of Motor Vehicles) Moscow, 1953, p. 10-29.

Hoyler, Alfred.
WINDSHIELD WIPER, tr. by C. P. 30 Oct 59, 13p. (8 figs. omitted) 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 60-13079

Trans. of German Auslegeschrift [DAS] 1,039,380, cl. 63 c, 82 (A 22827 II/63 c) appl. 10 June 55, announcement of appl. and of pub. of Auslegeschrift 18 Sep 58, by A. V. O. G. Elektro-und Feinmechanik G. m. b. H., Klotzbergstr. 1, Bühlertal, Bad.

Chudakov, E. A.
AN ENQUIRY INTO THE ROLLING OF ELASTIC (CAR WHEELS). 3p. M 1008.
Order from LC or SLA mi$1.80, ph$1.80 60-13711

Trans. of Akademiya Nauk SSSR. Doklady, 1950, v. 70, no. 5, p. 773-775.

A new equation is postulated for the coefficient f of resistance to rolling of a car wheel, by which the radial and tangential elasticity of the wheel is estimated from the radii, dynamic r_d and rolling r_k. The first is the distance from the axle of the wheel to the supporting surface and the second is defined by $r_k = s/2\pi n$, where s is the distance travelled by the wheel in n rotations. For a free rolling wheel the effect a of the radial reaction is positive (in the direction of rolling of the wheel) and equal to approximately 7 mm. In braking, a decreases; for a value of braking force p_k equal to 210 kg, a decreases to zero; for a greater braking force a has a negative sense (directed against the rolling of the wheel), and for maximum braking force (complete slipping of the wheel) it attains a value equal to approximately 5 mm.

MATERIALS

Bakke, Hans Anton.
FIRE RESISTANCE OF PRESTRESSED CONCRETE. [1959] [9]p. (2 tables omitted).
Order from SLA mi$2.40, ph$3.30 60-14007

Trans. of Teknisk Ukeblad (Norway) 1958, v. 105, no. 28, p. 651-658.

A survey.

Bartosch, E.
SUITABILITY OF RAW GYPSUM FOR CEMENT MANUFACTURE. [1959] 13p. (9 figs. omitted) 8 refs.
Order from SLA mi$2.40, ph$3.30 60-10992

Trans. of Zement-Kalk-Gips (West Germany) 1959, v. 12, no. 8, p. 362-369.

Mixing and intergrinding of clinker and raw gypsum yield different properties. The various raw gypsums are not all equal in respect of their activity. The different varieties of raw gypsum behave differently on being subjected to dissolving and heating. Heating gypsum above 110°C generally causes a reduction of setting time, water requirement and strength. Microscopic examination reveals differences in structure which are the cause of the differences in behaviour under conditions of cement grinding. Microscopic examination of sections of raw gypsums give an indication as to their suitability. (Author's English summary)

Kozlowski, C., Hayden and others.
DISCUSSION OF PRINCIPAL PAPERS. [1959] 6p.
Order from SLA mi$1.80, ph$1.80 60-14014

Trans. of Zement und Beton (Austria) 1959, no. 16, p. 17-19.

The papers were evidently presented at some sort of meeting devoted to cement hydration. The present document appears to consist of the discussion which followed the presentation of the main papers.

Osten, D. von den.
PACKING RING, tr. by C. P. 8 Dec 59, 3p. (5 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13286

Trans. of Swedish patent 111,729, cl. 47 f 22-11, pat. 9 May 42, granted 6 July 44, pub. 5 Sep 44.

A packing ring, designed for packing parts which are exposed to high temperatures, is described which consists of a sheet metal jacket and a mineral filling substance. The filling substance is composed of a fine powder of a substance pressed into the jacket which, in the vicinity of the operating temperature, through physical or chemical change, experiences an extra increase in volume which is greater than that which corresponds to the simple expansion by heating. The filling substance consists of talcum.

Remenec, M.
EXPERIMENTS ON DIFFERENT METHODS OF STORING AND PRESERVING BONES INTENDED FOR THE MANUFACTURE OF GELATIN AND GLUE. [1959] 8p.
Order from ATS $12.40 ATS-88L36C

Trans. of Chem[icke] Listy (Czechoslovakia) 1936, v. 30, no. 13, p. 169-173.

Stärker, A.
THE VANAL PROCESS. [1959] [6]p. (2 tables omitted) 5 refs. A. C. S. I. L. Trans. no. 1078.
Order from SLA mi$1.80, ph$1.80 60-14029

Trans. of Sprechsaal (West Germany) 1957 [v. 90] no. 15, p. 365-367.

A survey.

Zaydenberg, Ya. Z.
DIRECT PRINT PAPER AND ITS PROPERTIES. [1959] 4p. 5 refs. T-3103.
Order from LC or SLA mi$1.80, ph$1.80 60-14152

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1959, v. 4, no. 4, p. 311-312.

Experimental samples of direct print paper with direct blackening were prepared, using a bromothiocyanate emulsion protected by gelatin and special reducers. These papers make it possible to obtain oscillographic recordings on a model recording instrument with a rate exceeding 50 m/sec. Necessary time of secondary exposure by scattered daylight required for developing the recording did not exceed 7 sec. The photographic image of the oscillograph recording on these papers has a satisfactory contrast and light stability. Although it cannot be exposed to direct sunlight, the image remains sufficiently contrasty for more than 5 or 6 hours.

Fuels, Lubricants, and Hydraulic Fluids

THE "F'AG KUGELFISCHER" APPARATUS FOR TESTING LUBRICATING GREASES. [1959] [12]p. 1 ref.
Order from SLA mi$2.40, ph$3.30 60-10228

Trans. of mono. Apparecchio "F'AG Kugelfischer" per la Prova dei Grassi Lubrificanti, Milan, 1955, p. 50-[54].

Antikayn, P. A.
MEASUREMENT OF PULVERIZED COAL FLOW IN AN AIR STREAM. Apr 57 [4]p. 2 refs. T. 159; M554.
Order from LC or SLA mi$1.80, ph$1.80 59-22691

Trans. of Teploenergetika (USSR) 1956, v. 3, no. 12, p. 35-37.

Good results were obtained from a pilot test of the method of Carlson, Frazier, and Engdahl (Trans. Am. Soc. Mech. Engrs. 40: no. 2, 1948) for measuring pulverized coal flow. The installation of the instrument under industrial conditions is suggested.

Cornelissen, J., Waterman, J. A., and Waterman, H. I.
RING ANALYSIS DIAGRAMS FOR SATURATED MINERAL OIL FRACTIONS. II. REGULARITY IN THE RING-ANALYSIS DIAGRAMS FOR SATURATED MINERAL OIL FRACTIONS WHICH USE TWO DIFFERENT PHYSICAL CONSTANTS. Trans. no. 166 of Literature Relating to Mineral Industries. [1959] 5p.
Available on loan from DI

Trans. of Brennstoff-Chemie (West Germany) 1958, v. 39, p. 141-145.

See also 60-12436

Cornelissen, J., Watermann, J. A. and Waterman, H. I.
RING ANALYSIS DIAGRAMS FOR SATURATED PETROLEUM AND THE VERDET-CONSTANT AS A MEANS OF DETERMINING THE RING CONTENTS OF SATURATED PETROLEUM FRACTIONS. Trans. no. 165 of Literature Relating to the Mineral Industries. [1959] 2p.
Available on loan from DI

Trans. of Brennstoff-Chemie (West Germany) 1958, v. 39, p. 84-86.

Fuchs, W.
RECENT PROGRESS IN CHEMICAL INVESTIGATION OF COAL. Trans. no. 170 of Literature Relating to Mineral Industries. [1959] 12p.
Available on loan from DI

Trans. of Brennstoff-Chemie (West Germany) 1958, v. 39, p. 1-6.

[Funasaka] Wataru [Yokokawa, Ch.] and others.
CONVERSION OF LOW-TEMPERATURE TAR INTO FUEL OIL. III. CATALYTIC REDUCTION OF ANILINE, PYRIDINE, ETHOXYBENZENE, AND FURFURAL UNDER ATMOSPHERIC PRESSURE. [1959] 4p. (3 tables omitted).
Order from SLA mi$1.80, ph$1.80 60-10027

Summary trans. of Kogyo Kagaku Zasshi (Japan) 1949, v. 52, no. 4, p. 148-149.

High yields of neutral oils (mainly benzene) were obtained by the reduction of aniline at atmospheric pressure with iron-system catalysts $Ni(OH)_2$, $Co(OH)_2$, $Cr(OH)_3$, $Cu(OH)_2$, FeOOH, WO_3, Mo_{13}, Fe_2O_3, and yellow soil from Niwaita, Fukushima Prefecture. Traces of neutral oils were obtained from pyridine when FeOOH, yellow soil, Ni, Co, and No were used. When ethoxybenzene was reduced with a MoO_3+ catalyst, benzene yields of 8.0% and 14.6% were obtained at reaction temperature of 450° and 500°C, respectively. The benzene was the 79° to 81°C fraction by a Widmer rectification column. Some water was obtained in the reaction and ethylene was detected in the gas. It was concluded that the ethoxybenzene had changed as follows: $C_6H_5OC_2H_5+H_2 \rightarrow C_6H_6+C_2H_5OH$ and $C_2H_5OH \rightarrow C_2H_4+H_2O$. When furfural was treated catalytically, the oils produced were of a weakly acidic nature and the presence of phenols was not detected.

Gundermann, Erich.
CONCERNING THE QUESTION OF ANALYSIS OF A BROWN-COAL-TAR PARAFFIN OIL WITH SELECTIVE SOLVENTS [NO. 1]. Trans. no. 174 of Literature Relating to Mineral Industries. [1959] 16p.
Available on loan from DI

Trans. of Erdől und Kohle (West Germany) 1957, v. 10, p. 151-157.

Jaeger, Charles.
ENGINEERING FLUID MECHANICS, tr. by P. O. Wolf. 1957, 520p.
Available on loan from DI

Trans. of German mono. Technische Hydraulik, n.p., n.d.

Kolodtsev, Kh., I. and Babiy, V. I.
GASIFICATION OF PULVERISED COAL AT HIGH INTENSITY IN A BED OF LUMP FUEL UNDER PRESSURE. June 58 [10]p. T. 169; M406.
Order from LC or SLA mi$1.80, ph$1.80 59-22474

Trans. of Teploenergetika (USSR) 1958, v. 5, no. 5, p. 25-31.

The results of 26 experiments show the possibility of intensively gasifying pulverized fuel (p.f.), including even such unreactive fuels as anthracite in a bed of lump fuel under pressure, at loadings of 1700-1800 $kg/m^2/h$ and at heat rates referred to the working volume of the gas producer above 12.10^6 $kcal/m^3/h$. Despite the fact that the experiments were carried out in a gas producer which was not specially designed for the process, and without preheating the air and p.f. it was possible for the first time to gasify pulverized lean coal and anthracite in amounts exceeding 50% of the lump fuel consumed while obtaining gas of similar purity and similarly steady slag removal as when gasifying coal without p.f. injection. The maximum consumption of p.f. obtained in the experiments was of the order of 250 kg/h, which exceeded the consumption of lump fuel 2.5 times. Despite the fact, however, that at this rate increased entrainment of dust from the gas producer occurred, nevertheless the fact that the entrained solids were of a coarse particle size and therefore easily intercepted by the cyclone, enabled a gas of an adequate degree of purity to be obtained after this had been subjected to similar cleaning processes as are employed in the gasification of lump fuel. The possibility of recycling the intercepted entrained solids with the blast, ensures a high efficiency for the combined process and permits the total losses due to unburnt carbon to be reduced, to a q_4 value of approximately up to 1%. The experiments did not establish that the size grading of the p.f. (R_{88} = 10.8 -67.8%) had any noticeable effect on the characteristics pf the process, which indicates that it is

possible to use p.f. that is quite coarsely ground or crushed. (Author) (See also 59-18342, 59-22473, 59-22476)

Kolodtsev, Kh. I. and Babiy, V. I.
INTENSIVE GASIFICATION OF SOLID FUEL FOR GAS TURBINE PLANTS. Jan 57 [9]p. 3 refs. Trans. T. 156; M405.
Order from LC or SLA mi$1.80, ph$1.80 59-22473

Trans. of Teploenergetika (USSR) 1956, v. 3, no. 9, p. 18-24.

As a result of a series of investigations an optimum technical system for the process and the most rational structural form of producer have been developed; the producer operates under pressure according to the furnace method. Characteristic features of the gas producer which particularly favour its use in conjunction with gas turbine plants, are as follows: high specific loading (above 1500 kg/m^2/h in fuel or above 10 mill. kcal/m^2/h in heat even at pressures of 3-4 atm abs, up to 90% of the ash content of the fuel is discharged as liquid slag); a comparatively small amount of fuel is entrained in the gas and this decreases with increasing pressure; stable composition of the gas produced, whose calorific value exceeds 950 kcal/Nm^3; comparatively high temperature of the gas (of the order of 800°C); comparatively low height of the fuel bed and consequently lower flow resistance; gravity feeding of the fuel without any kind of feeder; the use of cold air for blowing; high rate of charging the plant; complete absence of mechanical gear; easy control and regulation of the process; use of simple carbon steels for all parts of the gas producer; and, the possibility of employing conventional methods in gas cleaning. The calculations show that a gas turbine plant of 25000 kW with a thermal efficiency of approximately 30% at a full load of 1500 kg/m^2/h requires only one gas producer of not more than 3m diameter. For higher loads, the diameter of the gas producer can be considerably reduced, particularly at the expense of increasing the pressure. The gas producer developed can be employed not only in stationary power plants, but also for transport; in the later instance the introduction of the gas turbine would be of considerable economic importance. (Author) (See also 59-18342, 59-22474)

Kolodtsev, Kh. I. and Orel'chenko, I. F.
RESEARCH ON A HIGHLY RATED GAS PRODUCER FOR GAS TURBINE PLANTS. July 57 [7]p. 3 refs. Trans. T. 161; M408.
Order from LC or SLA mi$1.80, ph$1.80 59-22476

Trans. of Teploenergetika (USSR) 1956, v. 3, no. 11, p. 37-42.

The tests have considerably widened the range of loading previously obtained (Teploenergetika 3: 18, 1956, a translation of which is available from LC or SLA as 59-22473), from 600 kg/m^2/h of fuel to 2500 kg/m^2/h at similar pressures (4-7 atm). At given loadings the heat release per unit volume of combustion space referred to the effective capacity of the gas producer and the combustion chamber (Q/V = Q/(vgp + vc.ch.) attains values of the order of 20.10^6 kcal/m^3/h; this is more than 100 times the rate of heat release in modern chamber furnaces. (Author) (See also 59-18342)

Kurokawa, Masatake and Fujiwara, Kozo.
SECONDARY HYDROGENATION UNDER SUPER-HIGH PRESSURE OF OIL OBTAINED BY THE LIQUEFACTION OF COAL. [1959] 3p. (3 tables omitted).
Order from SLA mi$1.80, ph$1.80 60-10072

Summary trans. of Kogyo Kagaku Zasshi (Japan) 1945, v. 48, no. 3, p. 40-41.

The middle oil component (200° to 320°C fraction, d_{20}^{20} 0.943) of the liquified product from coal was investigated. With 1.5% of MoS_3 catalyst and an initial hydrogen pressure of 200 atmospheres, hydrogenation accompanying decomposition first occurred at about 425°C. The product was colorless and the quantity of the below-200°C fraction was 15% relative to the sample. Hydrogenation advanced further at 450° and 470°, giving 57.6 and 60.4%, respectively, of the same fraction. (This is about 10% more than when the initial pressure was 100 atm.) Secondary decomposition of the product oil took place at 470° and the paraffin underwent cyclization and changed to aromatic and naphthene components. When reactions were conducted under an initial pressure of 200 atm at 470°C for 5, 30, or 60 minutes, the oil obtained was colorless: 95% consisted of fractions of below 200°C. Secondary decomposition of the product oil which took place by reactions longer than 30 min caused the paraffin and unsaturated components to undergo cyclization. There was a shifting from naphthene and aromatic compounds due to the escape of the OH groups from the acidic oil, and a portion of the product gas polymerized. By increasing the initial pressure to 400 atm the reaction times were shortened to one half or less. With either MoO_3 or MoS_3 as catalysts the progress of the reaction was similar. The below 200°C fraction was greatest (about 60%) with an initial pressure of about 200 atm. MoS_3 catalyst had a greater tendency to accelerate the reaction velocity by an increase of pressure.

Loginov, V. I.
INJECTION OF PULVERIZED FUEL THROUGH TUYERES INTO THE HEARTH OF A BLAST FURNACE. May 57 [4]p. Trans. T. 160; M409.
Order from LC or SLA mi$1.80, ph$1.80 59-22477

Trans. of *Metallurg (USSR) 1956, Apr, p. 10-12.

The purpose of injecting pulverized fuel is to reduce the consumption of the more valuable fuels, such as metallurgical coke. Pilot tests at the Dzerzhinski blast-furnace plant established that in producing ferro-silicon a considerable metallurgical effect can be obtained by injecting pulverized fuel from low-grade coals and wastes.

Polyatskin, M. A. and Yudin, V. F.
RESEARCH INTO THE PROCESS OF GASIFYING ANTHRACITE AND COKE BREEZE WITH STEAM-AIR BLAST. June 59 [6]p. 3 refs. T-174; M. 739
Order from LC or SLA mi$1.80, ph$1.80 59-22608

Trans. of Gaz[ovaya] Prom[yshlennost'] (USSR) 1958, no. 8, p. 8-12.

Gasification of lump solid fuel under pressure with steam/air blast and dry ash removal can be carried out under increased ratings. In an experimental gas producer for anthracite and coke breeze in the pressure range of 6-21 atm, a fuel gasification rate of 1500 kg/m^2/h was obtained, which by no means represents the final limit. The characteristics of the gasification process (taking into account the size of the plant) were satisfactory. At given loads of fuel and at specific pressures of 6, 11 and 21 atm considerable differences in the characteristics of the process were observed. Thus the C. V. of the dry gas at a pressure of 6 atm was 100 kcal/Nm^3 less than at pressures of 21 atm, all other conditions being equal. Heat losses in the slag at pressures of 6 atm were 0.9-1.8% higher than at 21 atm. By controlling the amount of steam added to the blast it was possible to ensure non-slagging operation with high loads. The presence of steam in the blast had no appreciable effect on the thermal efficiency of the gas turbine plant; this was shown by preliminary calculations. The distribution of the blast over the cross-section of the producer had a considerable effect on the operation of the gas producer. The performance of the gas producer was limited not by the size of the charge but by the limiting capacity of certain components of plant equipment. The construction of a plant with uniform distribution of blast, fuel and ash in the producer should lead to a considerable increase in rating. (Author's conclusions)

Shmakova, E.
UNDERGROUND GASIFICATION OF COAL; THE ECONOMIC ADVANTAGES OF USING OXYGEN IN THE U.G. OF COAL. Mar 58, 5p. T.165; M407.
Order from LC or SLA mi$1.80, ph$1.80 59-22475

Trans. of Podzem[naya] Gaz[ifikatsiya] (USSR) 1957, no. 4, p. 67-69.

Calculations by the economic section of VHI Podzemgaz show that it is economically feasible to employ oxygen even under the Moscow station conditions, where very high electricity tariffs prevail. In regions where power costs are lower (Donbass, Angron, Kuzbass, etc.), this method of gas production has a promising future.

Leather and Textiles

Altman, K. Z.
DYEING OF STAPLE FIBRE WITH VAT DYES IN CENTRIFUGAL APPARATUS, tr. by I. Gawronska. 8 June 59, 4p. Misc. Lit. 2999; M634.
Order from LC or SLA mi$1.80, ph$1.80 59-22618

Trans. of [Tekstil'naya Promyshlennost' (USSR) 1958, v. 18, no. 4, p. 58-59.

Recipes and procedures are described to be applied to industrial conditions, using a centrifugal apparatus for the dyeing of lots of staple fibre weighing 100 kg. Before the dyeing operation the basket is uniformly loaded with staple fibre and soaked in the apparatus for 20 min at 30° in the solution of 1% hydrosulphite, 1% NaOH and 0.2% OP-10. The basket is then lifted and the dyeing solution is prepared in the apparatus in the following way: 1/3 of the volume of the apparatus is filled with water heated to the temperature required for the ripening (?) of the particular dyestuff. Then the solution of glue, the mother liquor and the remainder of the caustic soda and hydrosulphite (33% of each) are added. The solution obtained is left to ripen for 45 min. to attain the shade of the leucocompound. A sample of the solution on a glass plate should be quite transparent and its color must correspond to the color of the leucocompound of the dye used. The preparation of the leucocompound solution must be made with the pump working. The basket with the fibre is lowered into the solution and water is added to cover the basket. The solution is then heated and the dyeing operation is carried out at the temperature required by the particular dye till its exhaustion. During dyeing the pump is reversed every 10 min, starting from the periphery to the centre. When the dyeing is finished the solution is pumped off and the fibre is rinsed first with cold water, then with warm water (20 min each). After rinsing the brightening operation is carried out for 10 min at 30° with a solution of 1% glycerine and 5% NaCl. After brightening the basket with the fibre is unloaded. The whole duration of dyeing is 2 hours 20 mins.

Badalov, K. I.
AN IMPORTANT DEFECT IN THE DESIGN OF COMBERS. [1959] [11]p. 6 refs. M 283.
Order from LC or SLA mi$2.40, ph$3.30 59-19159

Trans. from [Izvestiya Vysshikh Uchebnykh Zavedeniy. Tekhnologiya Tekstil'noy Promyshlennosti] (USSR) 1958, v. 2, no. 3.

The work of cotton combers of different design is examined with respect to the formation in cycles of separate portions (tufts) of fibres and of combed web. It is concluded that the design of a new comber must provide for a constant draft value during fibre detachment and also the possibility of regulating the length of overlap for the piecing of fibre tufts.

Bolten, Josef.
UNRAVELING MACHINE, tr. by C. P. 30 Dec 59, 9p. (10 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13278

Trans. of German patent 835117, cl. 56 a, gr. 2, pat. from 25 Jan 49, appl. announced 9 Aug 51, granting of pat. announced 21 Feb 52, pub. 27 Mar 52, by Josef Bolten, Düsseldorf.

A rotor is used which, arranged in overhanging manner on a driving shaft, rotates in a casing wherein, in the lower part, an unraveling plate provided with hackling pins extending toward the outlet opening is arranged in such a way that its rear portion approximately adopts the shape of the rotor

while in the outer wall of the casing there is provided mid-axially an opening for feeding the material. The rotor, cast from light metal, is provided with connecting webs which terminate in massive, wedge-shaped construction with great external friction surface radially with respect to the middle axis. The connecting webs of the rotor are channeled on the external peripheral surface. The rotor is provided with wing-like ribs or the like in such a way that these in the rotation produce an exhaustor effect extending toward the interior of the casing. The rotor side disk and interior wall of casing are in alignment and the opening of the casing corresponds approximately to the diameter of the rotor disk. A protective hood covers the arrangement from the casing to the motor in a tight manner. The unraveling plate is cast and is made shiftable for the purpose of exchange for greater or lesser degree of fineness of the material unraveled. The unraveling plate is provided with an interchangeably mounted sharp blade serving as a rejecting device. Before the feed opening is placed a disk with a plurality of passage connections of different inside diameter which by means of a clamping device can be adjusted before the feed opening in the position corresponding to the desired connection size.

Chesnokov, N. Ye.
THE DEVELOPMENT OF THE TEXTILE AND KNITTED FABRIC INDUSTRIES OVER THE YEARS 1959-1965 (Razvitiye Tekstil'noy i Trikotazhnoy Promyshlennosti v 1959-1965 Godakh). Jan 60, 14p. (8 figs. omitted) RTS 1360.
Order from LC or SLA mi$2.40, ph$3.30 60-15058

Trans. of Tekstil'naya Promyshlennost' (USSR) 1959 [v. 19] no. 1, p. 1-9.

Golubev, N. M.
STRIVING FOR THE RIGHT TO BEAR THE TITLE "BRIGADES OF COMMUNIST LABOUR" (Za Pravo Nazyvat'sya Brigadami Kommunisticheskovo Truda). Jan 60, 10p. RTS 1361.
Order from LC or SLA mi$1.80, ph$1.80 60-15059

Trans. of Tekstil'naya Promyshlennost' (USSR) 1959 [v. 19] no. 1, p. 10-12.

Production achievements and goals of the Kupavna light fabric factory are described in a style designed to kindle enthusiam in textile workers throughout the USSR.

Kudryavtsev, G. L., Bernatskaya, E. E., and Sevelkin, L. F.
HIGH-SPEED SPINNING OF POLYAMIDE FIBERS. Oct 59 [5]p. 7 refs.
Order from SLA mi$1.80, ph$1.80 60-10794

Trans. of Tekstil'naya Promyshlennost' (USSR) 1958, v. 18, no. 2, p. 15-16. (translated from a German translation of the Russian original)
Another translation is available from LC or SLA mi$1.80, ph$1.80 as 60-10266 [1959] 6p.

A new method was investigated for the formation of kapron fiber. This method makes it possible to obtain fiber directly from the spinning machine with characteristics acceptable to the textile industry.

Temmerman, R.
PROPERTIES OF A NEW HIGH TENACITY VISCOSE FIBER. [1959] [9]p. 1 ref.
Order from SLA mi$1.80, ph$1.80 60-10792

Trans. of Annales Textiles (France) 1955, no. 4, p. 12ff.

Fiber Z-54 is a fiber with a high degree of polymerization and high stretch. It is obtained by means of preparation and spinning processes modified in such a way as to degrade the original cellulose to a minimum. The mechanical characteristics of Z-54 are better than those of regular viscose fibers. It shows high tenacity in a conditioned state. Z-54 is about twice as strong in the wet state as an ordinary fiber.

Wronski, Mieczyslaw.
ON THE QUESTION OF TRITHIOCARBONATE FORMATION IN THE XANTHATION REACTION. [1959] 2p. 2 refs.
Order from SLA mi$1.80, ph$1.80 60-10766

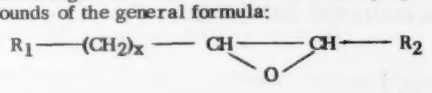
Trans. of Faserforsch[ung] u[nd] Textiltech[nik] (Germany) 1957, v. 8, no. 1, p. 32-34.

Plastics

EPOXY COMPOUNDS AS STABILIZERS FOR THERMOSETTING AMINO RESINS. [1959] 5p. 1 ref.
Order from RIS $7.50 RIS rept. 6335

Trans. of German patent application R 9422 (39b, 22/04) field 7 July 52, pub. 9 Feb 56, by Ruetgerswerke A. G., Frankfurt.

Patent rights are claimed for the use of epoxy compounds of the general formula:



Here R_1 represents an organic radical, preferably an acyl, carboxyl, alkoxy, cycloalkoxy, aroxy, alkaroxy or aralkoxy radical, or an alkyl, cycloalkyl, aryl, alkaryl or aralkyl radical, or such a radical substituted with hydroxy or primary or secondary amino groups: R_2 represents one of the above radicals, particularly a hydrocarbon radical, or a hydrogen atom; x stands for 1 or another low number. The amino resins stabilized with the epoxy compounds contain fillers, colorants, plasticizers, and lubricants.

Chatain, M[ichel].
RELATIONS BETWEEN THE PROPERTIES AND THE MOLDING METHODS OF THE THERMOPLASTICS. (II) C. CONSEQUENCES OF THE ORIENTATION CONSTRAINTS AT THE LEVEL OF MECHANICAL TESTING. [1959] [31]p. 4 refs.
Order from SLA mi$3.00, ph$6.30 60-14073

Trans. of Industrie des Plastiques Modernes (France) 1958, v. 10 [no. 6] p. 37-45.

Rubber and Elastomers

ROLLING APPARATUS FOR OPENING AND CLOSING PNEUMATIC TIRE HEATING MOLDS, tr. by P. C. C. 15 Feb 60, 8p. (15 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-15545

Trans. of French patent 1,136,039, gr. 10, cl. 1, appl. 19 Sep 55, granted 22 Dec 56, pub. 7 May 57, by VEB Schwermaschinenbau "Ernst Thälmann", German Democratic Republic.

Crespi, G. and Bruzzone, M.
CROSSLINKING DENSITY AND PHYSICAL PROPERTIES OF ELASTOMERS OBTAINED FROM ETHYLENE-PROPYLENE COPOLYMERS. [1959] [18]p. 14 refs.
Order from SLA mi$2.40, ph$3.30 60-14209

Trans. of [la] Chim[ica] e [l']Ind[ustria] (Italy) 1959, v. 41, no. 8, p. 741-748.
Another translation is available from SLA mi$2.40, ph$3.30 as 60-14216 [1959] [16]p.

Crespi, G. and Bruzzone, M.
CROSSLINK DENSITY AND PHYSICAL PROPERTIES OF ELASTOMERS OBTAINED FROM ETHYLENE-PROPYLENE COPOLYMERS. [1959] [16]p. 14 refs.
Order from SLA mi$2.40, ph$3.30 60-14216

Trans. of [la] Chimica e l'Industria (1959) Italy, v. 41, no. 8, p. 741-748.
Another translation is available from SLA mi$2.40, ph$3.30 as 60-14209 [1959] [18]p.

Desmur, Émile.
IMPROVEMENTS IN ROTARY SCRAPERS, tr. by P. C. C. 14 Dec 59, 3p. (5 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 60-13275

Trans. of French patent 946,650, gr. 10, cl. 1, appl. 6 May 47, granted 27 Dec 48, pub. 9 June 49.

A rotary scraper particularly for use on rubber and in which the scraping teeth consist of the ends of staple-shaped members inserted from the inside in the holes of a cylindrical sleeve which is subsequently forced on to a drum is described. The holes are inclined by the same angle and in the same direction with respect to the normal to the outer surface of the sleeve, in a plane normal to the axis thereof. The sleeve and the drum are slightly conical and assembled by forcing.

Wood and Paper

Hancil, J., Moravec, J. and others.
TRACING PAPER FROM HARDWOOD PULP. [1959] 4p.
Order from ATS $6.25 ATS-28L36C

Trans. of Papír a Cel[l]ulosa (Czechoslovakia) 1959, v. 14, no. 7, p. 149-150.

Hosoi, H., Takagi, J., and Gocho, S.
RESEARCH ON THE PRODUCTION OF FURFURAL AND HIGH α-PULP FROM HARD WOOD. I. THE QUALITY OF THE PULP OBTAINED. [1959] 9p.
Order from ATS $16.50 ATS-29L36J

Trans. of Parupu Kami Kogyo Zasshi (Japan) 1959, v. 13, no. 6, p. 379-384.

MATHEMATICS

JOURNAL OF APPLIED MATHEMATICS AND MECHANICS, 1959, VOL. 23, NO. 4, P. 899-1152. Dec 59, 1v.
Order from PP $35.00/year

Trans. of Prikladnaya Matematika i Mekhanika (USSR) 1959, v. 23, no. 4, p. 625-800.

*PRIKLADNAYA MATEMATIKA I MEKHANIKA (USSR) 1959, V. 23, NO. 5, P. 801-992 (Applied Mathematics and Mechanics). [1960] 1v. SOV-40-23-5-(1-32)/32.
Order from OTS $0.60, $3.50/year PB 141 034T-8
Foreign $0.85, $5.00/year

Consists of abstracts in English.

Khoklov, R. V.
ON THE LOCKING THEORY FOR SMALL AMPLITUDES OF THE EXTERNAL FORCES. [1959].
Order from MDF MDF K-176

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1954, v. 97, no. 3, p. 411-414.

Zalgaller, S. I.
ON THE SUMMATION OF FOURIER SERIES BY THE BERNSHTEYN-ROGOSINSKIY METHOD. [1959] 8p. 2 refs.
Order from MDF $4.00 MDF Z-120

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedeniy]. Matematika (USSR) 1959, no. 5(12) p. 104-111.

Computing Devices

Epshteyn, V. L.
ON THE ALGORITHM FOR STATISTICAL SELECTION OF HIGH-PROBABILITY SYMBOLS IN SELF-ADJUSTING SYSTEM WITH LIMITED MEMORY. 21 Jan 60, 5p. 1 ref. JPRS: 2137-N.
Order from OTS $0.50 60-11183

Trans. of *Radiotekhnika i Elektronika (USSR) 1959 [v. 4] no. 9, p. 1563-1565.

A universal computer capable of simultaneously remembering only M different symbols can automatically separate M most frequent symbols from the number G ≫M.

Mayorov, F.
DEVELOPMENT OF COMPUTING TECHNIQUE DURING THE SEVEN YEAR PLAN (Razvitiye Vychislitel'noy Tekhniki v Semiletke). 13 Jan 60 [4]p. AF 1419373.
Order from LC or SLA mi$1.80, ph$1.80 60-13536

Summary trans. from Sovetskaya Aviatsiya (USSR) 1959, 8 Apr, p. 3.

Miroshnikov, Ivan Fedorovich.
READING DEVICE USING PHOTOTUBES AND TRANSISTORS. 18 Dec 59, 77p. JPRS: 1068-D.
Order from OTS $2.00 60-31006

Trans. of Peredovoy Nauchno-Tekhnicheskiy i Proizvodstvennyy Opyt (USSR) 1958, topic 40, no. P-58-20/1, p. 3-45.

For accelerating the process of data input in high-speed digital computers a phototube device which reads numbers from punched tape with a speed of 1250 to 1500 characters (columns) per second (with a record step of 4.0 mm) was developed in one of the scientific research institutes. The rate of transmission of numbers in the machine is selected so that at the time of input of each number (during uniform tape movement) in the machine for which this device has been developed the information can be converted from the bi-decimal system to the binary system. The reading device circuitry is made of semiconductor elements -- crystal diodes and triodes (transistors) which in recent years are receiving wider usage. The use of new elements decreased the power requirement by 90% in comparison with the power required by similar equipment operating on electron tubes and increased the operating reliability of the installation. In addition, the transistorized circuitry requires no cooling. (Extracted from the translation)

Sal'nikov, A.
EXPERIENCE IN THE MECHANIZATION OF THE RECEIPT AND PROCESSING OF INFORMATION AT THE CENTRAL COMPUTER STATION OF THE CENTRAL STATISTICAL ADMINISTRATION OF THE USSR. 16 Dec, 9p. JPRS: L-1140-N.
Order from OTS $0.50 60-11127

Trans. from Byulleten' Nauchnoy Informatsii. Trud i Zarabotnaya Plata (USSR) 1959, no. 3.

Schlaeppi, H. P. and Carter, I. P. V.
MAGNETIC CORE MEMORIES USING MULTIPLE COINCIDENCE. [1959] 15p, 6 refs.
Order from MDF $7.50 MDF S-141

Trans. of Elektron[ische] Rechenanl[agen] (West Germany) 1959, v. 1, no. 3, p. 127-133.

The growing need for very large and fast stores that cycle in less than one microsecond calls for an increased selection ratio in the current-coincidence store. A large selection ratio is shown to entail profound changes in the design of core type stores. The conventional core-switch does not satisfy the new requirements. The "double-core" switch is described; it leads to an elegant solution of the switching problem for high selection ratios and admits of an economical design, according to the multiple coincidence principle of Minnick and Ashenhurst (J. Appl. Phys. 26: 575, 1955). The design and operation of experimental stores with the respective selection ratios 3:1 and 7:1 are described and illustrated with the aid of oscillograms recorded on models built to test the principle presented. (Author)

Shura-Bura, M. R.
PROGRAMMING, tr. by Morris D. Friedman. Oct 59, [12]p. 1 ref. AFCRC-TN-59-782; S-135; AD-228 176.
Order from LC or SLA mi$2.40, ph$3.30 59-22732

Trans. of mono. Matematika v SSSR za Sorok Let, 1917-1957, Moscow, 1959, p. 879-886.

The research of Soviet mathematicians on programming problems is reviewed.

MECHANICS

THEORY OF PLASTIC DEFORMATIONS OF METAL. Sep 59, 522p. 31 refs. F-TS-9429/V.
Order from LC or SLA mi$11.10, ph$80.40 60-15394

Trans. of mono. Teoriya Plasticheskikh Deformatsiy Metallov, Moscow-Leningrad, 1956, 368p.

Contents:
Theory of finite deformations
Plane and axisymmetric finite deformations
The state of stress of plastically deformable metals
The stressed state in plane and axisymmetric strain
Experimental methods of determining the mechanical characteristics of the plasticity of metals
The analytic work-up of experimental data of study of finite plastic deformation

Bufler, H. von.
ON THE THEORY OF ROLLING FRICTION (Zur Theorie der Rollenden Reibung). [1959] [50]p. (foreign text included) 19 refs.
Order from SLA mi$3.30, ph$7.80 60-14066

Trans. of Ingenieur-Archiv (Germany) 1959, v. 27, no. 3, p. 137-152.

Il'yushin, A. A. and Ogibalov, P. M.
EFFECT OF HIGH PRESSURE STRENGTHENING A HOLLOW CYLINDER. [1959] 4p. 2 refs.
Order from MDF $2.00 MDF I-119

Trans. of A[kademiya] N[auk] SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izvestiya: M[ekhanika] i M[ashinostroyeniye] 1959, no. 6, p. 110-112.

The reinforcing effect of high pressure is very substantial.

Il'yushin, A. A.
PENETRATION OF AN AXIALLY SYMMETRICAL PUNCH INTO AN INCOMPRESSIBLE PLASTIC BODY, tr. by R. E. Daisley. [1959] [12]p. 3 refs. Trans. no. 1027; M 584.
Order from LC or SLA mi$2.40, ph$3.30 59-22663

Trans. of mono. Plastichnost', Moscow-Leningrad, 1948, chap. 6, p. 339-344.

Lur'ye, A. I.
STATICS OF THIN-WALLED ELASTIC SHELLS, tr. by Benjamin Skolnikoff. Oct 59, 210p. 64 refs.
Order from OTS $2.00 AEC-tr-3798

Trans. of mono. Statika Tonkostennykh Uprugikh Obolochek, Moscow/Leningrad, 1947.

Contents:
Equilibrium equations of an elastic, symmetrically loaded shell of revolution
Elements of the geometry of a surface of revolution
Symmetrical deformation of a surface of revolution
Geometry and deformation of a shell of revolution
Stress in a symmetrically loaded shell of revolution
Equations of the statics of a shell element
Statical equations of a volume element of a shell
Relation between strains and stresses
Fundamental differential equations of a symmetrically loaded shell of revolution
Integrals of the fundamental differential equations of the theory of thin shells
Properties of the solutions of the homogeneous differential equation of the theory of shells
Nature of stresses in a shell
Temperature stresses in a shell of revolution
Solution of the fundamental differential equations for shells of the simplest geometrical shapes
Differential equation of the equilibrium of a thin symmetrically loaded cylindrical shell
Solution for a long cylindrical shell
Solution for a short cylindrical shell
Conical shell. Particular solution of a nonhomogeneous system of differential equations
Solution of the homogeneous equation for a conical shell
Example of calculations of a conical shell
Spherical shells. Particular solution of the nonhomogeneous system of differential equations
Solution of the homogeneous system of equations for a spherical shell
Solution of problems of a closed spherical shell
Concentrated force applied to the top of a spherical dome
Round plate of small initial at curvature
Approximate solution of the fundamental differential equations of a symmetrically loaded shell of revolution
The three types of meridional sections
Shells of the cylindrical class
Shells of the conical class
Shells of the spherical class
Arbitrarily loaded cylindrical shell
Geometry and deformation of the cylindrical surface
Deformation of the shell
Relation between stresses and deformations. Equilibrium equations of an element of shell
Displacement functions
Method of double trigonometric series. Cylindrical archway and cylindrical pipeline
Method of simple trigonometric series. Cylindrical pipeline
Cylindrical archway

Complex stress function
Stress concentration around holes in the surface of a circular cylinder

Malkina, R. L.
THE ANALYSIS OF BEAM AND TRUSS SYSTEMS WITH THIN-WALLED ELEMENTS BY THE METHOD OF SUCCESSIVE APPROXIMATION (Raschet Balochnykh i Ramnykh Iz Tonkostnnykh Elementov Metodom Posledovatel'nykh Priblizhenii). Oct 58 [24]p. 9 refs. TIL/T. 4878; M 522.
Order from LC or SLA mi$2.70, ph$4.80 59-22569

Trans. of [Ural'skiy Politekhnicheskiy Institut, Sverdlovsk. Trudy] (USSR) 1955, v. 54, p. 82-102.

A process is described for calculating girder and truss structures of thin-walled beams, using the method of successive approximation. Attention is also given to the analysis of structures in which displacement of the joints not merely influences the value of the loading moment, but in fact determines it. The method is founded on the same essential principle as that developed by S. A. Rugitsky, (Truss analysis, in Russian, Mashgiz, 1948) for frameworks

on non-thin walled beams, and called the method of distributed constraining moments. This method considerably simplifies the calculation of statically indeterminate structures and in many cases spares the calculator the time and labour involved in solving systems of equations.

Sokolov, A. M.
THE QUESTION OF THE RANGE OF APPLICABILITY OF THE MOMENTLESS THEORY TO THE DESIGN OF SHELLS OF NEGATIVE CURVATURE. [1959] [21]p. 4 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-16723

Trans. of Akademiya Nauk SSSR. O[tdeleniye] Tekhnicheskikh] N[auk]. Izvestiya [1955] no. 5, p. 85-101.

For analysis, a shell was chosen in the form of a hyperboloid of one sheet, such as is frequently found in actual construction. It is assumed that the shell has two closed edges, lying in planes perpendicular to the axis of the hyperboloid. It is shown that it is possible to use the Novodvorskii condition of applicability of momentless theory (i. e., the requirement that the edge constraints rule out bending of the middle surface) only in conjunction with the requirement formulated by A. L. Gol'denveizer (Theory of thin elastic shells, in Russian, GTTI, 1953: a translation of the table of contents is available from MDF as G-150, which was announced in Technical Translations as 60-12487) that the variability of the stress state sought for not to be too large.

Aerodynamics and Pneumatics

Gonor, A. L.
ON THE LOCATION OF THE BOW WAVE IN NONSYMMETRIC HYPERSONIC GAS FLOW AROUND A POINTED BODY. [1959] 3p. 2 refs.
Order from MDF $3.00 MDF G-167

Trans. of A[kademiya] N[auk] SSSR. O[tdeleniye] T[ekhnicheskikh] N[auk]. Izv[estiya]: M[ekhanika] i M[ashinostroyeniye] 1959, no. 5, p. 117-118.

Computations indicated that there exists a Mach number, M, for each cone for which the shock again becomes almost circular and then flattens out against the body more strongly than on the leeward side. This approaches more rapidly for a given Mach number the thicker the cone. The air flow was experimentally studied around six cone models with half-angles $\theta_0 = 15$, 20, 25, 30, 35 and 40^0 at $M = 4$. Shadowgraphs were made with a Toepler instrument of the compression shocks in the flow-symmetry plane. The shock angles were measured by (1) projection of the negative on a screen and outlining the shock-wave and body contours and subsequent measurement with a goniometer, (2) measurement of the angles directly on the magnified photograph, and (3) measurement of the angles with a microscope. The last method appeared to be unsuccessful since there was a great deal of scatter in the processed data of the same experiment. The experimental data indicated that the shock actually has a tendency to enlarge the cone angle to equalize the angles in diametrically opposite planes and then to assume a smaller angle on the leeward side.

Haller, P. de.
PHOTOGRAPHIC STRIATION METHODS APPLIED TO THE SUPERSONIC WIND TUNNEL OF THE E. T. H., ZURICH. [1959] [4]p. 1 ref. R. T. P. Trans. no. 2443.
Order from SLA mi$1.80, ph$1.80 59-17713

Trans. of E[idgenossische] T[echnische] H[ochschule] Zurich. [Institut fur Aerodynamik. Mitteilungen] (Switzerland) 1943, no. 8, p. 44-49.

Hydrodynamics, Hydraulics, and Hydrostatics

Kolmogorov, A. N.
THE BREAKING UP OF DROPLETS IN A TURBULENT STREAM. [1959] 5p.
Order from ATS $6.80 ATS-07L37R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1949, v. 66, no. 5, p. [835]-838.

Yershov, V. N.
THE PRINCIPLE OF MINIMUM DRAG AND THE CONSTRUCTION OF THE CHARACTERISTICS OF THE RUNNER OF AN AXIAL-FLOW FAN (Printsip Minimuma Soprotivleniya i Postroenie Kharakteristik rabochego Kolesa Osevogo Ventilyatora) 12 June 58 [21]p. (foreign text included) 13 refs. M 575.
Order from LC or SLA mi$2.70, ph$4.80 59-22672

Trans. of [Akademiya Nauk URSR, Kiev. Laboratoriya Hidravlichnykh Mashyn. Sbornik Trudov] 1956, no. 6, p. 74-85.

A possible procedure is discussed for constructing the characteristics of runners of axial-flow fans solely from the calculation of the profile resistance of the blades. The calculation assumes a hypothesis which allows the observed motion (i. e., the most stable) to be selected from all the possible forms. A multiplicity of possible solutions is assumed to the question of the motion of a medium in the flow passage of a bladed machine.

METALLURGY

THE ABSTRACTS JOURNAL, METALLURGY; PART 'A', 1958, NO. 9. Oct 59, 74p.
Order from PP $20.00/year

Trans. of abstracts of a highly scientific nature from Referativnyy Zhurnal. Metallurgiya (USSR) 1958, no. 9.

EFFECT OF ULTRASONIC VIBRATIONS ON THE AGE-HARDENING OF DIFFERENT ALLOYS. [1959] 3p. M636-639.
Order from LC or SLA mi$1.80, ph$1.80 59-22616

Contents:
1. Effect of Ultrasonic Vibrations on the Aging of Different Grades of Duralumin, by F. K. Gorskiy and U. I. Yefremov. Abstract trans. from Akademiya Navuk BSSR, Minsk. Izvestiya, 1953, no. 3.
2. The Effect of Ultrasonic Oscillations on Processes Occurring in Matallic Alloys, by N. T. Gudtsov and M. N. Gavze. Abstract trans. of Zhurnal Neorganicheskoy Khimii (USSR) 1956, v. 1, no. 7, p. 1533-1538.
3. The Effect of Ultrasonic Vibrations on Aging and Processes During the Tempering of Certain Alloys, by K. M. Bogodina-Alekseyeva and G. I. Eskin. Abstract trans. of [Metallovedeniye Termicheskaya i Obrabotka Metallov] (USSR) 1956, no. 1, p. 42-[45].
   A complete translation is available from HB$3.50 as HB-4551.
4. Accelerated Aging of Heat-Resistant Nickel-Base Alloy EI 437 B (equivalent to Nimonic 80A) under the Influence of Ultrasonic Vibrations, by V. S. Yer[m]akov and E. A. Al'ftan. Abstract trans. of [Metallovedeniye Termicheskaya i Obrabotka Metallov] (USSR) 1958, no. 7, p. 22-27.
   A complete translation is available from HB$4.90 as HB-4278.

THE PHYSICS OF METALS AND METALLOGRAPHY, 1958, VOL. 6, NO. 2. Nov 59, 195p.
Order from PP $30.00/year

Trans. of Fizika Metallov i Metallovedeniye (USSR) 1958, v. 6, no. 2, p. 193-385.

Agababov, S. G.
TEMPERATURE MEASUREMENT OF THE LIQUID SLAG FILM IN COMBUSTION CHAMBERS WITH LIQUID SLAG REMOVAL. Apr 59 [6]p. 8 refs.
Trans. no. T. 173; M569.
Order from LC or SLA mi$1.80, ph$1.80 59-22677

Trans. of Teploenergetika (USSR) [1957] v. 4, no. 8, p. 65-68.

On the basis of experimental work carried out, the possibility is shown of measuring the temperature of liquid slag films by means of a tungsten-molybdenum thermocouple in the combustion chambers of industrial boilers with liquid slag removal. Experimental data are presented. (Author)

Bardin, I. P., ed.
[METALLURGY, U. S. S. R. (1917-1957)]. [1960].
Order from BISI • BISITS 1606

Trans. of table of contents of mono. Metallurgiya S. S. S. R. (1917-1957) v. 2, Moscow, 1959.

Hajek, M.
MELTING IN ELECTRIC FURNACES. [1960].
Order from BISI £5 10s BISITS 1532

Trans. of Slevarenstvi (Czechoslovakia) 1958 [v. 6] no. 12, p. 384-390.

The technological and economic scope of the use of electric furnaces in foundries casting steel, grey cast-iron and non-ferrous metals are analyzed. While proper and extensive use of arc furnaces is made in steel foundries, such furnaces are used less and less efficiently in foundries casting grey cast-iron and non-ferrous metals. The decisive factors in deciding for or against the use of arc furnaces in grey iron foundries is shown to be the ratio of the prices of current and coke, and the amount of cheap scrap locally available. Various types of furnaces are illustrated and the technology of melting grey cast-iron in them is discussed. (J. Iron Steel Inst. abstract)

Kunakov, N. E.
ENERGY PROBLEMS OF BLAST-FURNACE OPERATION AT ELEVATED PRESSURES. [1960].
Order from BISI £4 5s BISITS 1583

Trans. of Stal' (USSR) 1955 [v. 15] July, p. 637-639.

The effects of using high top pressure on the operation of the blast furnace and ancillary plant are discussed on the basis of accumulated experience and calculation. The following are among recommendations made for existing works adopting high top pressure operation: Use of the additional energy of the top gas for improving the efficiency of available gas-cleaning plant and to enable better plant to be adopted; increase in the mains pressure; operation of gas-using furnaces with injector burners; and for new and reconstructed works the quicker development of improved dry cleaning methods to reduce dust content of gas at 200-250°C to 8-10mg/m^3 and the greater use of heat exchange. (J. Iron Steel Inst. abstract)

Lonchar, Karol.
DEVELOPMENT OF THE METALLURGICAL INDUSTRY IN THE RUMANIAN PEOPLE'S REPUBLIC. 22 Jan 60, 10p. JPRS: L-873-D.
Order from OTS $0.50 59-11592

Trans. of Stal' (USSR) 1957, v. 17, no. 11, p. 1042-1045.

Mindukshev, V. F. and Terminasov, Yu. S.
X-RAY DIFFRACTION INVESTIGATION OF THE FRAGMENTATION OF BLOCKS AND THE DISTORTION OF THE ATOMIC LATTICE DURING STATIC AND DYNAMIC DEFORMATION OF METALS AT NORMAL AND LOW TEMPERATURES. [1959] 6p. 11 refs.
Order from MDF $3.00 MDF M-125

Trans. of *Fiz[ika] Met[allov] i Metallov[edeniye] (USSR) 1958, v. 6, no. 6, p. 919-923.

An X-ray diffraction investigation of crystallite distortion and block fragmentation under static and dynamic deformations at both room and liquid nitrogen temperatures was made by means of the K_{α_1} broadening of the (511) and (422) lines for duraluminum and the (331) line for copper. When the line broadening for static deformation at the greatest percentage compression at room temperature achieved 72.4%, and 52.6% for dynamic deformation as compared with the line width of the standard, then the maximum line broadening for static and dynamic compression, respectively, was 103.2 and 102% during deformation in liquid nitrogen. A harmonic-analysis computation showed that the lattice distortions at room temperature achieve a magnitude of 1.10×10^{-3} for statically compressed duraluminum and 0.9×10^{-3} for dynamically deformed duraluminum. The duraluminum samples deformed at low temperature had internal stress of 1.20×10^{-3} for static and somewhat lower (1.16×10^{-3}) for dynamic deformation. Therefore, the dynamic deformation at room temperature generates a lesser microdistortion, in magnitude, of the crystal lattice than those which are generated by static compression. The relaxation was increased at room temperature in comparison with that at liquid nitrogen temperature, consequently, the influence of the deformation rate is considerably greater and the stresses generated by hardening under compression are partially reduced by the relaxation, mainly during dynamic compression. At low temperature the microdistortions achieved a larger magnitude and the block size was almost halved as compared to the block size of samples deformed at room temperature.

Mirgalovskaya, M. S. and Strel'nikova, I. A.
INVESTIGATION OF THE SYSTEM Mn-Ce. [1960] 5p. 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3920

Trans. of Akad[emiya] Nauk SSSR. Institut Metallurgiy. Trudy, 1957, v. 2, p. 135-138.

Manganese-cerium alloys were prepared under a protective flux consisting of 62.5% $BaCl_2$, 17% NaCl, and 21% KCl. The melting point of the flux was 576°C. Fifteen grams of manganese was fused under a flux by heating slowly at a temperature of 1300 to 1400°C for 7 to 10 minutes. Cerium in an excess of 50% was added to the molten manganese all at once. By the time the cerium was added, the temperature of the melt had fallen to the temperature of crystallization of manganese (the melt had become viscous). After addition of the cerium, the temperature rose rapidly to 1400°C, and the furnace was switched off after an interval of 2 min. On the basis of the data obtained by thermal analysis and microscopic study of the alloys, a phase diagram was constructed for the system Mn-Ce. The data obtained by A. Jandelli (Atti accad. naz. Lincei Rend. Classe sci. fis. mat. e nat. 13: 265, 1952) are plotted on the same diagram. The figure shows that the phase diagram of this system is of the eutectic type. The eutectic point corresponds to a temperature of 635°C and a composition of about 5% manganese, and 95% cerium. The liquidus curve consists of four branches representing the primary crystallization of three modifications of manganese and the crystallization of a high temperature modification of cerium. Plateaus at 1087°C and 998°C can be explained by the presence of the polymorphic modifications of gamma-manganese with a transformation temperature of 1138°C and of beta-manganese with a transformation temperature of 1100°C.

Nikolayev, A. N.
ROLLING OF METAL POWDERS (Prokatka Metallicheskikh Poroshkov). Jan 60, 10p. 12 refs. RTS no. 1215.
Order from LC or SLA mi$1.80, ph$1.80 60-13468

Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Chernaya Metallurgiya (USSR) 1958, no. 2, p. 113-121.

Thierry, P.
THE PRESSURE AND SUPPLY OF WIND TO THE BLAST FURNACE. [1960].
Order from BISI 14 5s BISITS 1582

Trans. of [la] Metallurgie [et la Construction Mecanique] (France) 1953 [v. 85] no. 1, p. 15-19.

T'ien, Shih-chieh and Chang, Lan-tzu.
METALLURGICAL INDUSTRY IN COMMUNIST CHINA; A SMALL COPPER ORE DRESSING PLANT BUILT AND PUT INTO OPERATION IN ONLY 21 DAYS; EXPERIENCE IN HEATING COPPER CONCENTRATES TO RAISE THE EFFICIENCY OF FILTRATION; A METHOD TO REMOVE AND RECOVER ZINC FROM LEAD CONCENTRATE; GRANULAR FLOTATION OF BISMUTOSPHERITE; SMALL SCALE HORIZONTAL CONVERTER TO BLOW COPPER MATTE INTO BLISTER COPPER. 21 Dec 59, 30p. JPRS: 1080-D.
Order from OTS $1.00 60-31010

Trans. of Yu-se Chin-shu (Chinese People's Republic) 1959, no. 3, p. 4-6; no. 7, p. 26-27 (excerpts); no. 14, p. 14 (excerpts), p. 15-18 and p. 21-28. (excerpts).

Wiberg, M.
SOME NEW SPONGE IRON PROCESSES. PT. II. [1959] 9900 words.
Order from HB $19.50 HB-4665

Trans. of Jernkontoret [Stockholm]. Annaler (Sweden) 1958, v. 142, no. 6, p. 319-355.

Concluding part of a description and evaluation of sponge iron processes of current interest. Shipley (U.S. Steel) Nu-Iron process; tabulated data on gas volumes and composition. Esso-Little process. R-N process; results of laboratory tests; fundamental work done on process; flowsheet of Birmingham, Ala. plant. Madaras process; Longview, Tex. operation; simplified Monterrey, Mexico version. Principles of Cavanagh, Echeverria, Spain, and Aspegren, U.S. processes. Conclusions drawn: unsolved mechanical problems; promise of reduction of fine-particle ores by gases. General Discussion --abridged with respect to nontechnical portions--

Flexibility of Wiberg process; production of reducing gas by various methods: coke + steam (with and without CO_2 absorption; coke + propane; oil + oxygen; oil + oxygen with CO_2 absorption. Reduction of concentrate vs. sintered pellets. Economics. (See also 60-12033) (HB abstract)

Ferrous Metals

*STAL (USSR) 1959 [V. 19] NO. 11, P. 961-1055 (Steel). [1960] 1v. SOV-133-59-11-(1-28)/28.
Order from OTS $0.70, $4.00/6 mo. PB 141 136T-18
Foreign $0.95, $5.50/6 mo.

Consists of abstracts in English.

Asnis, A. E.
FATIGUE STRENGTH OF WELDED JOINTS IN MSt. 3 STEEL CONTAINING UP TO 0.15% OF As, tr. by J. H. Dixon. Feb 59 [19]p. 14 refs. TR/4/59; M 593.
Order from LC or SLA mi$2.40, ph$3.30 59-22655

Trans. of Avtomaticheskaya Svarka (USSR) 1958 [v. 11] no. 3, p. 24-34.

This investigation concerned the fatigue strength of welded joints in arsenical, killed and rimming open-hearth steels. Some possible reasons for low fatigue strengths are given, with recommendations for the structural use, under variable loading, of steels containing up to 0.15% As. (Author)

Brauns, E. and others.
THE DISPLACEMENT OF THE NON-VARIANCE POINT BETWEEN IRON, WUSTITE, MAGNETITE AND OXYGEN IN THE SYSTEM OF IRON-OXYGEN BY ALLOYING ELEMENTS OF FOREIGN OXIDES; EFFECTS ON THE BEHAVIOUR OF IRON IN SCALING. [1960].
Order from BISI £8 15s BISITS 1551

Trans. of Arch[iv für das] Eisenhütt[enwesen] (West Germany) 1959 [v. 30] Sep, p. 553-564.

Relationships between temperature of wüstite formation and rate of scaling of iron. Thermodynamic considerations regarding the displacement of the temperature of formation of wüstite in the transition in ternary systems iron-oxygen-added element. Oxidation experiments and microscopic investigations on iron-chromium, iron-nickel and iron-manganese alloys. Discussion of the experimental results from the point of view of the above thermodynamical considerations. Process of the internal oxidation of iron-nickel alloys. (Author)

Cherny, Vatslav.
THE PRESENT STATE OF AND PROSPECTS FOR THE DEVELOPMENT OF THE FERROUS METALLURGY OF CZECHOSLOVAKIA. 22 Jan 60 [23]p. (5 figs. omitted). JPRS: L-874-D.
Order from OTS $0.75 59-11593

Trans. of Stal' (USSR) 1957, v. 17, no. 11, p. 1046-1055.

Cihal, V. and Jezek, J.
THE PROBLEM OF THE DISTRIBUTION OF PRECIPITATES IN CORROSION-RESISTANT AUSTENITIC STEELS. [1960].
Order from BISI £5 5s BISITS 1511

Trans. of Hutnicke Listy (Czechoslovakia) 1959 [v. 14] no. 8, p. 695-700.

The importance of the precipitates. Experimental results. A simplified extraction replica. Distribution of the carbides in 18Cr-9Ni steels. The effect on notch impact strength. Chromium and titanium carbides in 18Cr-9Ni-Ti steel. The crystalline formation of the chromium carbide $Cr_{23}C_6$. Conclusions. (Contents list).

Danishevskiy, S. K.
INDUSTRIAL APPLICATION OF TUNGSTEN-MOLYBDENUM THERMOCOUPLES FOR MEASURING THE TEMPERATURE OF LIQUID STEEL (Promyshlennoye Vnedreniye Vol'fram-molibdenovykh Termopar dlya Izmereniya Temperatury Zhidkoy Stali). June 58, 11p. 4 refs. C. T. S. no. 450.
Order from LC or SLA mi$2.40, ph$3.30 60-13308

Trans. of Stal' (USSR) 1955 [v. 15] no. 11, p. 984-989.

A high temperature furnace, the construction of which has been improved to permit a sufficiently accurate calibration of immersion-type thermocouples, makes it possible to carry out the calibration of the thermocouple within an hour. Although a probable error of up to $\pm 13^{o}$ may be reached for an individually calibrated thermocouple in the range of working temperature ($1400-1700^{o}$), the accuracy of the group calibration in the same range constitutes $\pm 14^{o}$ and the accuracy of the measurement of the temperature of liquid steel in industrial conditions - $\pm 15^{o}$. The improved construction of tungsten-molybdenum thermocouples serves in industrial conditions quite satisfactorily. The use of the carriage and the signalling system assist the clarity of the measurements and makes them easier. (Author's conclusions)

Höller, P.
METHODS OF OPERATION, AND PRACTICAL EXPERIENCES, IN THE AUTOMATIC SPECTROGRAPHIC ANALYSIS OF STEEL AND PIG IRON. [1960].
Order from BISI £4 5s. BISITS 1604

Trans. from Arch[iv für das] Eisenhütt[enwesen] (West Germany) 1959 [v. 30] Oct.

Choice of suitable spectrometer for determining as many elements as possible in steel and pig-iron. Determining C by the Quantometer. Simultaneous determination of C, P, Mn and Si in pig-iron by the Quantometer. Analytical methods for simultaneous determination of C, P, S, Mn and Si in pig-iron, by the Quantovac. (Author)

Jezek, J. and Voboril, J.
THE SECONDARY HARDNESS OF HIGH-SPEED STEEL. [1960].
Order from BISI £6 5s. BISITS-1530

Trans. of Hutnicke Listy (Czechoslovakia) 1959 [v. 14] no. 1, p. 47-54.

Some results of previous research. The author's experiments. Results of the experiments. Discussion of the results. Conclusions. (Contents list).

Knotek, M.
AN ANALYSIS BY STATISTICAL METHODS OF THE METALLURGICAL PROCESSES INVOLVED IN THE PRODUCTION OF TUBE STEELS. [1960].
Order from BISI £8 15s BISITS-1482

Trans. of Hutnicke Listy (Czechoslovakia) 1958 [v. 13] no. 3, p. 287-298.

Introduction. Application of mathematical statistics to the analysis of metallurgical processes in other countries. Tube steel production analysis in the Klement Gottwald Steelworks in Kunvice. (NHKG). Effect of melting variables on the reject rate. Analysis on the total melting time. Analysis of mechanical properties. Statistical methods used. Conclusions. (Author)

Luedemann, Karl-Friedrich
CONTRIBUTION TO THE METALLURGY OF THE LOW SHAFT FURNACE. 4 Dec 58, 21p. JPRS Transl no. L-1214D.
Order from OTS $0.75 59-11359

Trans. of Neue Hütte (East Germany) 1958, v. 3, no. 9, p. 523-532.

Topics discussed include (1) the development of the low-shaft furnace in the German Democratic Republic, (2) review of construction features and operating procedure of the low-shaft furnaces in Calbe, (3) combination of manganese and silicon reduction through the characteristic factor $K_{Mn, Si}$, (4) usability of the characteristic factor $K_{Si, S}$ in the interpretation of desulfurization processes, (5) some peculiarities of desulfurization in the low-shaft furnace, and (6) technical procedural measures for the improvement of desulfurization inside the furnace. (Presented at the Tenth Mining and Metallurgy Conference in Freiberg on 29 May 1958)

Navrotskiy, D. I.
THE STRENGTHS OF WELDED JOINTS UNDER THE SEPARATE ACTIONS OF RESIDUAL STRESSES AND LOCAL PLASTIC DEFORMATIONS, tr. by J. H. Dixon. Mar 59 [13]p. 4 refs. TR. 20/59; M 620.
Order from LC or SLA mi$2.40, ph$3.30 59-22629

Trans. of [Politekhnicheskiy Institut, Leningrad]. Trudy (USSR) 1957, no. 189, p. 43-50.

Pashchenko, A. I.
WELDING-UP OF A CRACK IN A MEDIUM-CARBON STEEL CASTING (Zavarka Treshchiny v Otlivke iz Sredneuglerodistoy Stali). Dec 59, 6p. 2 refs. RTS 1198.
Order from LC or SLA mi$1.80, ph$1.80 60-13430

Trans. of Svarochnoye Proizvodstvo (USSR) 1958, no. 11, p. 36.

The technology used at the Odessa Ship-Repair Plant for welding up cracks in medium-carbon steel cylinders proved unsatisfactory. A new technology was developed consisting in one-side welding over a bunch of filler wire, alloyed with manganese and aluminum, with the use of a copper support plate, and peening of the joint on the slag layer. The new technology is described and illustrated.

Stanyukovich, A. V. and Zemzin, V. K.
STRESS-RUPTURE STRENGTH OF WELDS AT HIGH TEMPERATURES. Jan 60, 3200 words.
Order from HB $6.85 HB-4147

Trans. of [Metallovedeniye i Termicheskaya Obrabotka Metallov] (USSR) 1958, no. 2, p. 12-18.

Paucity of information on rupture strength of welds under stresses parallel to the longitudinal weld axis and description of authors' rupture test procedure giving such information. Specimen shape and dimensions. Data on 1000, 10,000, and 100,000-hr rupture strengths, room temperature tensile and yield strengths, elongation and reduction of area values of longitudinal and transverse welds, parent metal, heat-affected zone, and weld metal in a pearlitic steel with pearlitic filler metal, austenitic steel with austenitic filler metal, and pearlitic steel with austenitic filler metal. Compositions of steels under study. Main factor governing the rupture strength of (a) longitudinal and (b) transverse welds. Origin of intergranular cracks leading to failure in rupture test; nature of fractures. What must be the overriding consideration in the selection of electrode wire compositions for welding creep-resisting steels, especially if the principal stresses run parallel to the weld joint? (HB abstract)

Terlecki, E.
FACTORS INFLUENCING THE BEHAVIOUR OF SOME TYPES OF AUSTENITIC AND FERRITIC STEEL DURING HOT DEFORMATION. [1960].
Order from BISI £5 5s BISITS 1557

Trans. of Hutnik (Poland) 1957, v. 24, June, p. 222-227.

Types of cracks occurring on high-alloy corrosion-resistant steels during hot working are discussed, together with their causes and prevention. Some aspects of the processing are presented which reduce the amount of scrap. (Author)

Tsygankov, E. M.
INFLUENCE OF THICKNESS OF STEEL SHEETS BETWEEN BRICKS ON ROOF LIFE. [1960].
Order from BISI £1 15s BISITS 1600

Trans. of *Metallurg (USSR) 1959, [v. 4] Apr, p. 17-19.

Zhemaytis, K.
FERROUS METALLURGY IN POLAND. 22 Jan 60, 9p. JPRS: L-872-D.
Order from OTS $0.50 59-11591

Trans. of Stal' (USSR) 1957, v. 17, no. 11, p. 1038-1041.

SOVIET CESIUM AND RUBIDIUM: OCCURENCE AND PRODUCTION. 30 Dec 59 [9]p. 42 refs. AF 1256396.
Order from LC or SLA mi$1.80, ph$1.80 60-13540

Trans. from Soviet publications, 1937-59.

Plyushchev, V. Ye. and Shakno, I. V.
DEVELOPMENT AND RECENT STATUS OF TECHNOLOGY OF RUBIDIUM AND CESIUM AND THEIR COMPOUNDS. [1960] 45p. 172 refs.
Order from LC or SLA mi$3.30, ph$7.80 AEC-tr-3820

Trans. of Uspekhi Khimii (USSR) 1957, v. 26, no. 8, p. 944-964.

Raub, E. and Roters, H.
THE PREPARATION OF PROTECTIVE LAYERS ON ALUMINUM AND ALUMINUM ALLOYS BY CHEMICAL MEANS [I] (Die Herstellung von Schutzschichten auf Aluminium und Aluminiumlegierungen auf Chemischem Wege). [1959] [13]p. 3 refs.
Order from SLA mi$2.40, ph$3.30 59-17112

Trans. of Forschungsinstitut und Probieramt für Edelmetalle, Schwäbisch-Gmünd. Mitteilungen (Germany) 1938, v. 12, no. 1/2, p. 1-9.

See also 59-17111

Raub, E., Roter, H., and Engel, M.
THE PREPARATION OF PROTECTIVE LAYERS ON ALUMINUM AND ALUMINUM ALLOYS BY CHEMICAL MEANS [II] (Die Herstellung von Schutzschichten auf Aluminium und Aluminiumlegierungen auf Chemischem Wege). [1959] [19]p. (7 figs. omitted) 1 ref.
Order from SLA mi$2.40, ph$3.30 59-17111

Trans. of Forschungsinstitut und Probieramt für Edelmetalle, Schwäbisch-Gmünd. Mitteilungen (Germany) 1938, v. 12, no. 3, p. 17-29.

See also 59-17112

Nonferrous (except light) Metals

SOVIET NONFERROUS METALLURGY: SELECTED TRANSLATIONS NO. 5, 25 Feb 60, 62p. 16 refs. JPRS: 2267.
Order from OTS $1.75 60-11311

Contents:

Technical (Technological) Progress in Metallurgical Plants of Rudnyy Altay, by V. I. Smirnov and A. Ya. Zaplavnyy. Trans. of Akademiya Nauk Kazakhskoy SSR [Alma Ata]. Vestnik, 1959 [v. 15] no. 6, p. 28-29.

Vital Problems of Mechanization and Automation in Altay Mines, by K. Akhmetov and N. Naumov. Trans. of Narodnoye Khozyaystvo Kazakhstana (USSR) 1959, no. 8, p. 21-26.

Improvement of the Technological Systems of Concentrating Nonferrous Metals in Connection with a Study of their Material Composition, by V. M. Arashkevich. Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Gornyy Zhurnal (USSR) 1958, no. 6, p. 130-135.

Cyanidation of Gold from Flotation Concentrates at High Pressure, by S. B. Leonov, V. R. Khoklov, and S. V. Bessonov. Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Tsvetnaya Metallurgiya (USSR) 1958, no. 3, p. 94-96.

Scientific-Research Work of the Moscow Institute of Nonferrous Metals and Gold imeni Kalinin in 1958, by S. F. Kuz'kin and N. V. Korovin. Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Tsvetnaya Metallurgiya (USSR) 1959, no. 4, p. 151-152.

Scientific-Research Work of the North Caucasian Mining and Metallurgical Institute in 1958, by V. V. Zhukovetskiy. Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Tsvetnaya Metallurgiya (USSR) 1959, no. 4, p. 152-155.

On the Selection of a Technological System for Processing Nepheline Rock of the Uzhur Deposit in Krasnoyarskiy Kray, by A. G. Bykova and Ye. I. Khazanov. Trans. of Akademiya Nauk SSSR. Sibirskoye Otdeleniye. Izvestiya, 1959, no. 6, p. 83-88.

Branch Conference on High-Capacity Aluminum Electrolyzers, by V. P. Vyazanitsyn. Trans. of Tsentral'nyy Institut Informatsii Tsvetnoy Metallurgii. Byulleten' (USSR) 1958, no. 5, p. 32.

How Not to Evaluate the Economics of Utilizing Certain Types of Alumina-Bearing Raw Materials in USSR Industry, by I. L. Tulmul. Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Tsvetnaya

Metallurgiya (USSR) 1959, no. 4, p. 158-160.

Results of Production and Management Activity of the Moscow Copper-smelting and Electrolytic Plant in 1957. Trans. of Tsentral'nyy Institut Informatsii Tsvetnoy Metallurgii. Byulleten' (USSR) 1958, no. 5, p. 35-36.

The Kounrad Mine, by G. M. Kukhranova. Trans. of Byulleten' Tsentral'nyy Institut Informatsii Tsvetnoy Metallurgi. Byulleten' (USSR) 1958, no. 7, p. 32.

The Volkhov Plant, by I. M. Zabelyshinskiy. Trans. of Tsentral'nyy Institut Informatsii Tsvetnoy Metallurgii. Byulleten' (USSR) 1958, no. 7, p. 34-35.

Al'tshuler, O. V. and Subbotina, Ye. A.
TANTALUM REFINING BY REMOVAL OF NIOBIUM AND TITANIUM IMPURITIES BY THE ION EXCHANGE METHOD. 10 Nov 59, 9p. 4 refs.
JPRS: L-1062-N.
Order from OTS $0.50 60-11011

Trans. of *Zhurnal Neorganicheskoy Khimii (USSR) 1959, v. 4, no. 1, p. 28-32.

The equilibrium and kinetics of tantalum adsorption from its hydrochloric solutions by anion exchangers EDE-10 and AN-2F were investigated. The low tantalum capacity of the resins, the lack of tantalum exchange against other ions present in solution, and the lack of isotope exchange between adsorbed and dissolved tantalum point to the nonion-exchange character of the adsorption of this element from concentrated HCl. A method is proposed for tantalum refining by removal of niobium, titanium, and of other elements which form complex anions in hydrochloric solutions. The method is based on the difference between the adsorption mechanism of these impurities by anion exchangers and on the tantalum adsorption mechanism. Tantalum containing 0.009% niobium and <0.05% titanium is thus prepared. It was shown that as Ti-free Nb is prepared according to the scheme suggested earlier by the same authors, the tantalum content of niobium may be simultaneously reduced by one order. Niobium containing ~0.040% Ta was prepared. (Author)

Structural Metallurgy and Corrosion

Borisov, V. T., Golikov, V. M. and Lyubov, B. Ya.
DETERMINATION OF DIFFUSION COEFFICIENTS WITHIN THE VOLUME AND AT THE BOUNDARIES OF METAL GRAINS, tr. by P. Collins. Sep 59. 15p. 8 refs. NP-tr-42.
Order from LC or SLA mi$2.40, ph$3.30 60-15393

Trans. of Akad[emiya] Nauk SSSR. Otdel[eniye] Tekh[nicheskikh] Nauk. Izvest[iya] 1956, no. 10, p. 37-47.
Also available from SLA as R-5026.

In this article are described the theoretical basis and an experimental application of the absorption method, which allows D and D_1 (the coefficients of volumetric and boundary diffusion) to be determined by the change of the integral activity of the specimen during the process of diffusion anneal. The method was also used in studies of iron diffusion in silicon-alloyed ferrites, and the results are included. (Author)

Lozinskiy, M. G.
TRENDS IN THE DEVELOPMENT OF HIGH-TEMPERATURE METALLOGRAPHY. 22 Jan 60, 26p. (22 figs. omitted) 23 refs. JPRS: L-975-D.
Order from OTS $0.75 59-11618

Trans. of Metallovedeniye i[Termicheskaya] Obrabotka Metallov (USSR) 1957, no. 11, p. 18-42.

Russo, E. di and Gualandi, D.
INFLUENCE OF ZIRCONIUM ASSOCIATED WITH MANGANESE ON THE RECRYSTALLISATION AND THE MECHANICAL PROPERTIES OF ANTICORODAL 11 EXTRUSIONS (Influenza dello Zirconio Associate col Manganese sulla Recristallizzazione e sulla Caratteristiche Meccaniche degli Estrusi di Anticorodal 11). 18 Sep 59 [21]p.
Order from SLA mi$2.70, ph$4.80 60-10109

Trans. from ISML Memorie e Rapporti, 1958, ser. 9, no. 206 (also in Alluminio (Italy) 1958, v. 27, no. 7/8, p. 321-329).

With an aluminum alloy containing Fe 0.2%, Si 1.0%, Mg 0.7%, Mn 0.37% and Zn 0.04%, the addition of 0.12 to 0.24% Zr produces a sufficient increase in the degree of precipitation hardening at the homogenizing temperature (530°C) to improve appreciably the macrostructure of extruded specimens. A similar effect can be produced with 0.7% Mn, without Zr, but this gives rise, during anodizing, to spots, owing to the segregation of Al-Mn and Al-Fe-Mn intermetallic compounds; this disadvantage does not arise with Mn + Zr in the range 0.3 to 0.4% Mn with 0.15 to 0.20% Zr. (Extracted from the translation)

Shabalin, V. I.
DISCONTINUITY IN THE FATIGUE CURVES FOR DURALUMIN [O Razryve v Krivykh Ustalosti Duralyumina]. [1959] [4]p. (foreign text included) 1 ref.
M 832.
Order from LC or SLA mi$1.80, ph$1.80 60-13576

Trans. of Akademiya Nauk SSSR. Dokl[ady] 1958, v. 122, no. 4, p. 600-602.

A 1 1/2-ton eccentric pulsator (10 unit), which made it possible to test specimens under repeated tension at a frequency of 10 c/min, was used to investigate the fatigue strength of plated duralumin sheets of Type D16T 2.5-mm thick. The alloy conformed to technical standards in chemical composition and possessed the following mechanical properties: ultimate strength 45.95 kg/sq mm, conventional yield point 33.37 kg/sq mm, relative extension 17.86 percent. Some 136 specimens were tested under fatigue without removing the aluminum plating layer, and 186 specimens were tested under fatigue after removal of the plated layer (σ_B = 49.57 kg/sq mm, $\sigma_{0.2}$ = 36.35 kg/sq mm and σ = 16.32 percent). Fatigue tests were also made on welded joints of duralumin which had

undergone hardening and natural ageing after welding. The separation of all fatigue curves into two parts indicated the existence of two mechanisms of fatigue failure. Additional confirmation of this was obtained in an experiment with a series of round cantilever specimens of alloy D16T which were subjected to rotating-bending fatigue tests. Special apparatus, giving 20 rev/min, was used. It was established that, under comparatively low stresses, the fatigue fracture is of a normal nature. The fatigue crack develops on the surface, spreads inward, forming a crack perpendicular to the axis of the specimen, i.e., fracture takes place in the plane of the maximum normal stresses (principal stresses during bending). When the stress cycle is of a large amplitude, fracture takes place at an angle of 45° to the axis of the specimen, i.e., along the line of the principal tangential stresses.

NUCLEAR PHYSICS AND NUCLEAR CHEMISTRY

*ATOMNAYA ENERGIYA (USSR) 1959, V. 7, NO. 6, P. 509-580 (Atomic Energy). [1960] 1v. SOV-89-7-6-(1-23)/23.
Order from OTS $0.60, $3.50/6 mo. PB 141 082T-25
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

THE SOVIET JOURNAL OF ATOMIC ENERGY, 1958, VOL. 5, NO. 6, P. 1533-1662. 1960, 1v.
Order from CB $20.00, $75.00/year

Trans. of Atomnaya Energiya (USSR) 1958, v. 5, no. 6, p. 605-[675].

Proskurnin, M. A., Barelko, Ye. V., and Kartasheva, L. I.
WATER AS A SENSITIZER OF THE RADIATION INITIATION OF THE OXIDATION OF BENZENE [Voda kak Sensibilizator Radyatsionnogo Initsiirovaniya Protsessa Okisleniya Benzola]. [1959] 3p.
Order from ATS $5.00 ATS-43L37R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1958, v. 121, no. 4, p. 671-673.

Elementary Particles

Barashenkov, V. S. and Huang, Nyan-Nin.
NUCLEON INTERACTION CROSS SECTION AT 9 BEV. 1959, 4p. 13 refs. P-277; NP-tr-248.
Order from LC or SLA mi$1.80, ph$1.80 59-22059

Trans. of *Zhur[nal] Eksp[erimen]tal i Teoret[icheskoy] Fiz[iki] (USSR) 1959, v. 36 [no. 4] p. 1319-1321.

Miller, M. A.
THE FOCUSSING OF BEAMS OF CHARGED PARTICLES BY HIGH FREQUENCY FIELDS, tr. by L. J. Goodlet, Apr 59 [7]p. 3 refs. Trans. U83; M626.
Order from LC or SLA mi$1.80, ph$1.80 59-22623

Trans. of Akademiya Nauk SSSR. Doklady, 1958, v. 119, no. 3, p. 478-480.

Instruments and Installations

Belonogov, A. V., Zel'dovich, A. G. and others.
PHOTOGRAPHIC SYSTEM FOR LARGE HYDROGEN BUBBLE CHAMBERS [Sistema Fotografirovaniya dlya Bol'shikh Vodorodnykh Pyzyr'kovykh Kamer]. [1959] 7p. 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3664

Trans. of P[ribory i] T[eknika] E[ksperimenta] 1958, no. 1, p. 38-41.

A method is described of illumination and photography of tracks in a chamber from one side. The method was verified in an operative 10-centimeter hydrogen chamber. A calculation of the pattern of light scattered by a bubble in a liquid is cited. (Author)

Bochagov, B. A., Kocharov, G. Ye., and Kirshin, G. F.
IMPROVEMENT IN THE ENERGY RESOLUTION OF THE PULSE IONIZATION CHAMBER WITH GRID, tr. by Lydia Venters. Dec 59, 6p. 6 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3932

Trans. of Pribory i Tekhnika Eksperimenta (USSR) 1957, no. 6, p. 72-74.

The basic factors which influence the energy resolution of a pulse ionization chamber with grid are discussed. Special attention is paid to the decrease of electronic noise. By selecting the first electron tube of the amplifier and its operating conditions we succeeded in reducing the root-mean-square value of electronic noise to 6.8 kev, that is by 3.2 kev less than in the best foreign experiments [those of A. B. Gillespie, 1953]. It is shown that our native 6 Zh 1 P tubes in their noise property exceed the American tubes of the type 6 AK 5. (Author)

Fleyshman, D. G. and Shakhidzhanyan, L. G.
BACKGROUND DECREASE IN THE MEASUREMENTS OF LOW ACTIVITIES IN LIQUID SCINTILLATION COUNTERS [Snizheniye Fona pri Izmereniyakh Malykh Aktivnostey v Zhidkikh Stsintillyatsionnykh Schetchikakh] tr. by Lydia Venters. Dec 59, 5p. 5 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3933

Trans. of *Pribory i Tekhnika Eksperimenta (USSR) 1959, no. 1, p. 135-136.

Measurements of the radioactivity of the materials contained in the scintillation counters (PhEM) have been carried out. A significant activity of glass containers of different types of photomultipliers as well as that of mica used in a series of PhEM was disclosed. It was shown that the radioactivity of glass containers for liquid scintillators contributes a significant share to the background (K^{40} β-radiation contained in the content of glass). Containers of other materials which decrease the background are suggested, which is especially important working with microactivities. (Author)

Kolganov, V. Z., Lebedev, A. V. and others.
LIQUID HYDROGEN BUBBLE CHAMBER [Zhidkovodorodnaya Puzyr'kovaya Kamera] [1959] [12]p. 9 refs.
Order from LC or SLA mi$3.40, ph$3.80 AEC-tr-3663

Trans. of P[ribory i] Teknika] E[ksperimenta] 1958, no. 1, p. 31-34.

The design of an operative liquid hydrogen bubble chamber of 1 litre volume, 10 centimeter Ø, is described. A description is given of a reliable method for vacuum sealing of glass windows to the chamber body at low temperatures. A photograph is reproduced of particle tracks obtained in the neutron direction of the synchrocyclotron at the United Nuclear Research Institute (Ob'odinyonnyi institut yadernikh issledovanii). (Author)

Nilitin, N. S.
THE EMPLOYMENT OF PHOTOGRAPHIC FILM FOR THE INDIVIDUAL DOSIMETRIC CONTROL OF BETA-PARTICLE FLUXES. 7 Jan 59, 10p. (7 figs. omitted) 10 refs. JPRS: L-1161-N.
Order from OTS $0.50 60-11168

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1959, v. 34, no. 4, p. 59-65.

Tret'yakov, Ye. F., Gol'din, L. L., and Grishuk, G. I.
TOROIDAL β-SPECTROMETER FOR INVESTIGATING THE CONVERSION RADIATION WHICH ACCOMPANIES α-DECAY, tr. by Lydia Venters. Dec 59, 15p. 4 refs.
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3935

Trans. of Pribory i Tekhnika Eksperimenta (USSR) 1957, no. 6, p. 22-30.

A nonferrous spectrometer of α - e-coincidences with a spatial focusing of electrons is described. The transmission of the apparatus is 7% (for electrons) with the resolution ~1% and it allows one to study the conversion lines with the intensity of 10^{-4} electrons per α-decay.

Yegorov, Yu. A.
FAST NEUTRON SCINTILLATION SPECTROMETER [Stsintillyatsionnyy Spektrometr Bystrykh Neytronov] tr. by Lydia Venters. Nov 59, 12p. 7 refs.
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3912

Trans. of *Pribory i Tekhnika Eksperimenta (USSR) 1958, no. 3, p. 21-26.

Two scintillation spectrometers were constructed. The spectrum of Po+Be source was measured by means of the scintillation spectrometer with the scattering angle at 45°. The block diagram of the scintillation with the scattering angle at 45° and the technique of processing of the results of measurements on the spectrometer are discussed. The spectrometer is standardized by measuring α-spectra of Po^{210} and β-spectra of Cs^{134} and Sr^{89}. To test the operation of the spectrometer the absorption spectra of fast neutrons were measured in concrete, water and paraffin. The measurements were carried out on a heavy-water nuclear reactor. The experiment indicated that the spectrometer operates reliably even under the conditions of an increased γ-background and may be used for the measurements with different neutron sources. (Author)

Nuclear Engineering and Power

SOVIET EXPERIMENTAL FAST NEUTRON REACTORS BR-1, BR-2, BR-3, BR-5. 17 Nov 59 [24]p. 27 refs. AF 1256294.
Order from LC or SLA mi$2.70, ph$4.80 60-13195

Trans. from Soviet and other publications, 1957-59.

BR-1: Capacity 50 watt; plutonium core; interchangeable reflectors, of uranium or copper with moving inner control components, of the same material as the reflector; no cooling system or biological shielding provided. BR-2: Capacity 100 to 200 kw; plutonium core; stationary uranium reflector surrounded by a copper layer; moving inner control components of copper-nickel alloy. Mercury as a coolant; water, cast iron and concrete used for biological shielding. BR-3: Capacity not mentioned; plutonium core; reflector of uranium layer surrounded by a compact natural uranium-water lattice; lattice, surrounded by a water layer. Moving inner control components of uranium. BR-5: Capacity 5,000 kw; sintered plutonium oxide core; nickel reflector, with a small internal part of uranium; reflector layers serve as control components. Sodium as a coolant; water, cast iron and concrete used for biological shielding.

THE SOVIET 10,000 KW NUCLEAR RESEARCH REACTOR (RFT). 15 June 59 [6]p. (4 figs. omitted) 2 refs. AF 1255865.
Order from LC or SLA mi$1.80, ph$1.80 59-18424

Trans. from Soviet Open Sources, 1957.

Natural uranium with a 15% enrichment of U-235 is used as fuel. Graphite is used as a moderator and a reflector. Water is used as a moderator and a coolant. The reactor consists of a steel cylindrical vessel filled with graphite and contains 37 fuel elements. The 4.5 m high vessel is made of 2.5 cm thick sheet steel. The diameter of the vessel is 2.6 m. The reactor core (1 m high and 1 m in diameter) is surrounded by a graphite reflector 2.4 m high. An additional 1.5 m thick graphite layer shields the upper part of the reactor. An 0.4 m layer of lead lies on top of the graphite. The reactor is covered with an 0.2 m thick cast iron lid. The steel vessel is shielded by a 3.2 m thick concrete wall. The 37 fuel channels are 54 mm in diameter each. Tubular fuel elements are provided with inner and outer aluminum claddings and are inserted in aluminum channels. Each of the fuel channels is equipped with an individual water meter, controlling the cooling water supply. All pipelines, pumps and heat exchangers which carry radioactive water are shielded by thick concrete walls. The hot distilled water is cooled in the heat exchangers by river water. The concrete shielding surrounding the steel reactor vessel is also cooled by river water which is passed through pipes running through the concrete. The graphite reflector area is also equipped with water carrying channels. The regular and emergency control systems are operated manually and automatically. Ion chambers are provided for automatic operation of control rods. Due to the burnup of U-235 and the accumulation of fission fragments, the fission ratio decreases daily by a 7×10^{-4} part of the initial value. As the multiplication factor is equal to about 1.15, it is possible to have an uninterrupted operational cycle of 100 days. Continuous operation can be assured if 10 to 15 burnup fuel rods are replaced every 100 days. The replacement operation can be performed in one day by a special automatic crane. The burnup rods are dumped into special disposal concrete wells, where they are kept for the time needed to eliminate their radioactivity.

Budker, G. I.
THERMONUCLEAR REACTIONS IN A SYSTEM WITH MAGNETIC MIRRORS AND THE QUESTION OF DIRECT TRANSFORMATION OF NUCLEAR ENERGY INTO ELECTRICAL ENERGY (PHYSICAL PRINCIPLES AND PRELIMINARY CALCULATIONS). [1959] 37p. 5 refs. M 360.
Order from LC or SLA mi$3.00, ph$6.30 59-22429

Trans. of mono. Fizika Plazmy, 1958, v. 3, pub. by Academy of Sciences USSR, 1958.

A principle is offered for the construction of a thermonuclear reactor, in which the thermal insulation is accomplished in a straight cylinder with a longitudinal magnetic field, with both ends closed by "magnetic mirrors". If the existing theory of the transport phenomena in a plasma, which was based on the assumption of two-body collisions, is applicable, and if no micro-turbulence or macroscopic motion of any sort appears in the system, then the proposed method will apparently allow us to realize a thermonuclear reaction under laboratory conditions and also, quite possibly on an industrial scale. In the system under consideration turbulence and other oscillations should not develop, since the process works in such a way that the plasma is in a state of quasi-equilibrium the whole time; its density is such that the path length is much greater than the size of the system; the plasma is in a strong externally applied field; and no current flows through the plasma. It is perfectly clear that owing to the extraordinary complexity of the phenomena involved and the lack of a completed theory of plasma, any definite answer as to whether the considered proposal is feasible can only be given after thorough theoretical and experimental investigation.

Neyman, M. V.
CHEMISTRY IN ATOMIC ENGINEERING. 15 Apr 59, 30p. (8 figs. omitted) JPRS: 1470-N.
Order from OTS $1.00 59-13417

Trans. of mono. (brochure) Khimiya v Atomnoy Tekhnike, 1957, ser. 4, no. 30, p. 2-32.

Radioactivity

Gorlov, G. V., Gokhberg, B. M. and others.
FISSION CROSS SECTIONS OF U^{233} AND U^{235} FOR NEUTRONS WITH ENERGY FROM 3 TO 800 KEV [Secheniya Deleniya U^{233} i U^{235} pod Deystviyem Neytronov s Energiyey ot 3 do 800 kev] tr. by Lydia Venters. Nov 59, 9p. 5 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3913

Trans. of *Atomnaya Energiya (USSR) 1959, v. 6, no. 4, p. 453-457.

Korneyev, Ye. I., Skobkin, V. S. and Flerov, G. N.
Th^{232} FISSION BY THERMAL NEUTRONS [Deleniye Th^{232} Teplovymi Neytronami] tr. by Lydia Venters. [1960] 7p. 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3934

Trans. of *Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki (USSR) 1959, v. 37 [no. 1] p. 41-45.

It is shown that the fission effect, which takes place in irradiating thorium with slow neutrons, actually is due to Th^{232} fission by thermal neutrons. The fission cross section amounts to (0.06 ± 0.02) mb. The results obtained are compared with the available experimental data concerning the fission of even-even nuclei by thermal neutrons. (Author)

Kuz'minov, B. D.
MEAN NUMBER OF PROMPT FISSION NEUTRONS IN U^{238} AND Th^{232}, tr. by Lydia Venters. Dec 59, 9p. 9 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3944

Trans. of Russian report presented by the mission of scientists during their visit to Argonne National Laboratory in Nov 59.

An experimental study was made of the dependence of the mean number of prompt fission neutrons on the fission neutron energy. Measurements were made of $\bar{\nu}$ for U^{238} and Th^{232} with neutron energies of 2.3, 3.75, and 15.7 Mev. Results indicate an approximately linear increase in $\bar{\nu}$, when the energy of the neutrons which induced the fission is increased. $d\bar{\nu}/dE_{n-I} = 0.144 \pm 0.008$ Mev^{-1} for U^{238}, and $d\bar{\nu}/dE_n = 0.15 \pm 0.01$ Mev for Th^{232}. These results are in good agreement with calculations of I. I. Bondarenko et al. (Mean number and spectrum of prompt neutrons in fast neutron fission, rept. no. 2187 of the Geneva conference on peaceful uses of atomic energy, 1958).

Protopopov, A. I., Tolmachev, G. N., and others. THE MASS DISTRIBUTION OF THE FRAGMENTS IN THE FISSION OF U^{235}, U^{238} AND Pu^{239} BY NEUTRONS WITH 14.6 MEV ENERGY, tr. by L. J. Goodlet. Feb 59 [11]p. 17 refs. Trans. U 72; M487.
Order from LC or SLA mi$2.40, ph$3.30 59-22548

Trans. of *Atomnaya Energiya (USSR) 1958, v. 5, no. 2, p. 130-134.

The present paper describes a method and communicates the results of measurements of the relative (percentage) yields of some fragments formed in the fission of U^{235}, U^{238} and Pu^{239} by neutrons with an energy of 14.6 Mev. The curves of distribution proved to be the ordinary two peak type. The ratios of peak to trough were 6.4, 4.8 and 3.6 for U^{238}, U^{235} and Pu^{239}, respectively. The distribution curve of the fragments according to their masses, for the case of fission of U^{235} had an additional peak, corresponding to a mass number of A=97 and rising 16% above the smooth curve. The increased yield of the mass 97 was maintained with any variation of the corrections for the partial yields of Nb^{95} and Nb^{97}. The results show the considerably greater probability of symmetrical fission by neutrons with an energy of 14.6 Mev. compared with fission by neutrons with a lower energy. There appears to be a tendency towards diminution of the relative probability of asymmetrical fission with increasing value of the parameter Z^2/A. The appearance of the additional peak, corresponding to the mass number 97 may be explained by the somewhat greater probability of formation during the fission process of heavy fragments with a closed shell containing 82 neutrons for which fragments with mass number 97 are supplementary (in consideration of the mean number of neutrons emitted).

Protopopov, A. N., Baranov, I. A. and Eysmont, V. P. ANGULAR ANISOTROPY AND ENERGY CHARACTERISTICS OF THE FISSION PROCESS [Uglovaya Anizotropiya i Energeticheskiye Kharakteristiki Protsessa Deleniya] tr. by Lydia Venters. Nov 59, 3p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3914

Trans. of *Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki (USSR) 1959, v. 36, no. 5, p. 1608-1609.

The case of U^{238} fission by 14.9-Mev neutrons is used to investigate the relationship between the energy characteristics of the fission process and the angle between the incidence directions of the excited particles and divergence of fragments. The energy of extra fragments during the fission along the direction of the neutron beam (0^o) and during fission in the direction perpendicular to the beam (90^o) was measured with a double ionization chamber. Some 5000 fissions at 0^o and 4000 at 90^o were recorded. With a ratio of fragment masses of 1.40 to 1.44, the mean kinetic energy of fragments is 170.7 ± 0.6 Mev at 0^o and 169.4 ± 0.8 Mev at 90^o.

Protopopov, A. N. and Eysmont, V. P. DEPENDENCE OF THE DEGREE OF ANGULAR ANISOTROPY OF FISSION PROCESS ON THE STRUCTURE OF NUCLEUS [O Zavisimosti Stepeni Uglovoy Anizotropii Protsessa Deleniya ot Struktury Yadra] tr. by Lydia Venters. Nov 59, 4p. 6 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3915

Trans. of *Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki (USSR) 1959, v. 36, no. 5, p. 1573-1574.

A thermodynamic interpretation is offered for the relation between the degree of anisotropy of the angular distribution $\sigma(0^o)/\sigma(90^o)$ and the parameter Z^2/A of fissioning nucleus. The temperature of nuclei in a critical deformation state was determined for the 14.3- to 14.8-Mev neutron fission of Th^{232}, U^{235}, U^{233}, Np^{237}, Pu^{239}, and Am^{241}. The dependence of $\ln[\sigma(0^o)/\sigma(90^o)]$ on $1/T$ is plotted from experimental data of Henkel and Brolley (Phys. Rev. 103: 1292, 1956); Protopopov and Eismont (Zhur. Eksptl. i Teoret. Fiz. 34: 250, 1958); and Protopopov, Baranov, and Eismont (Zhur. Eksptl. i Teoret Fiz. 36: 920, 1959). The data on the degree of angular anisotropy can be fitted on a straight line, which indicates that $\sigma(0^o)/\sigma(90^o)$ actually changes in different nuclei as $\exp(\Delta E/T)$ at ΔE = constant and $T = f(Z^2/A)$.

Protopopov, A. N. and Blinov, M. V. DETERMINATION OF THE AVERAGE NUMBER OF NEUTRONS EMITTED DURING FISSION OF U^{233} BY NEUTRONS WITH ENERGY 14.8 MEV, tr. by W. E. Jones. Jan 59 [2]p. 2 refs. Trans. U 68; M483.
Order from LC or SLA mi$1.80, ph$1.80 59-22543

Trans. of *Atomnaya Energiya (USSR) 1958, v. 5, no. 1, p. 71.

A twin ionization chamber, positioned with two identical plane-parallel chambers with common cathode, was used. At the cathode was located, built laterally from a rear, a platinum disc coated with U233. Each chamber served both as a fission detector, and as detector of neutrons emitted during fission by the foil in the other chamber. With a stream of alternate fast and thermal neutrons, the number of coincident pulses against fission fragments was measured for both chambers. From these results was determined

the relationship γ/γ^T which subsequently becomes, with appropriate corrections, 1.74 ± 0.16. By using the value $\gamma^T = 2.52 \pm 0.03$, the average number of neutrons emitted with each fission event of U^{233} by neutrons with energy 14.8 Mev was found to be equal to 4.4 ± 0.45.

Stavinskiy, V. S.
ON THE PROBLEM OF EMISSION MECHANISM OF PROMPT FISSION NEUTRONS [K Voprosu o Mekhanizme Ispuskaniya Mgnovennykh Neytronov Deleniya] tr. by Lydia Venters. Sep 59, 4p. 4 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3864

Trans. of *Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki (USSR) 1959, v. 36 [no. 2] p. 629-630.

A mechanism is postulated to account for the unusual features (especially the sharp peak) of the spectra of prompt fission neutrons reported at the Second U. N. International Conference in Geneva on the Peaceful Uses of Atomic Energy by H. R. Bowman and S. G. Thompson in June 1958 (The Prompt Radiations in the Spontaneous Fission of Cf^{252}, available from OTS $0.50 as A/CONF. 15/P/652: a revision of the report is also available from OTS mi$2.40, ph$3.30 as UCRL-5038(Rev.)). The surface energy included in the cores, which forms at the moment of scission, is assumed to change in the energy of the shock wave, which extends in the direction of the movement of fragment. Such a shock wave may lead to production from the nucleus of almost monoenergetic neutrons, which spread in the direction of the fragment movement.

PHYSICS

BULLETIN OF THE ACADEMY OF SCIENCES OF THE USSR. PHYSICAL SERIES, 1959, VOL. 23, NO. 1, P. 3-147. 1960, 1v.
Order from CTT $20.00, $215.00/year

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Fizicheskaya, 1959, v. 23, no. 1, p. 2-[152]. (Transactions of Conference on Luminescence (no. 6) Leningrad, 17-23, Feb 58. Molecular Luminescence and Luminescence Analysis).

REFERATIVNYY ZHURNAL. FIZIKA (USSR) 1959, NO. 10, ABSTRACTS 21808-23991 (Soviet Abstracts. Physics). 23 Feb 60, 134p. JPRS: 2285.
Order from OTS $1.25 60-11324

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia, excluding the USSR.

*ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI (USSR) 1959 (Journal of Experimental and Theoretical Physics) [1960]
Order from OTS $1.40, $7.50/6 mo.
Foreign $1.65, $9.00/6 mo.

V. 37, no. 4, p. 893-1175, PB 141 052T-21
V. 37, no. 6, p. 1177-1496, PB 141 052T-22

Consists of abstracts in English.

*ZHURNAL TEKHNICHESKOY FIZIKI (USSR) 1959, V. 29, (Journal of Technical Physics). [1960]
Order from OTS $1.00, $5.50/6 mo.
Foreign $1.25, $7.00/6 mo.

No. 11, p. 1293-1420, PB 141 053T-14
No. 12, p. 1421-1489, PB 141 053T-15

Consists of abstracts in English.

Dolginov, S. Sh. and Pushkov, N. V.
SOME USSR RESULTS OBTAINED BY MEASURING THE MAGNETIC FIELD OF THE EARTH WITH A SPACE ROCKET. 8 Jan 60, 7p. 5 refs. JPRS: L-1981-D
Order from OTS $0.50 60-31013

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. [129] no. 1, p. 77-80.

Acoustics

Merkulov, L. G.
SCIENTIFIC CONFERENCE ON THE USE OF ULTRA-ACOUSTICS IN THE STUDY OF MATTER [NO. 7]. 20 Jan 60, 3p. JPRS: 2138-N.
Order from OTS $0.50 60-11184

Trans. of *Akusticheskiy Zhurnal (USSR) 1959, v. 5, no. 2, p. 255-256.

Topics are noted of papers that were read at the conference held in Moscow on February 10 to 14, 1959.

Tarnotsi, T.
A COLLOQUIUM IN BUDAPEST, HUNGARY, CONCERNING ACOUSTICS AND ULTRASONICS. 20 Jan 60, 3p. JPRS: 1120-D.
Order from OTS $0.50 60-31026

Trans. of *Akusticheskiy Zhurnal (USSR) 1959, v. 5, no. 5, p. 504-505.

Topics are noted of papers that were presented at the third colloquium, which was in session on April 7 and 8, 1958.

Electronics

Grineva, K. I.
SURFACE WAVE ANTENNA WITH A SWINGING BEAM. [1959] 10p. 1 ref.
Order from MDF $5.00 MDF G-165

Trans. of *Radiotekh[nika] (USSR) 1959, v. 14, no. 10, p. 15-22.

The possibility is considered of constructing a double surface wave antenna. The peculiarities of double antennas are investigated: The narrowing of the directivity pattern and the swinging of the beam because of the change in phase of the supply voltage. Results are presented of an experimental check of a circular double surface wave antenna with a small phase velocity lag as are also certain computational formulas. The experimental development of an apparatus in the form of a radial line to excite surface wave antennas is also described. (Author)

Zhevakin, S. A. and Troitskiy, V. S.
ABSORPTION OF MICROWAVES IN A LAMINATED ATMOSPHERE [Pogloshcheniye Santimetrovykh Voln v Sloistoy Atmosfere] tr. by R. P. Illwitzer.
8 Dec 59, 11p. 6 refs. TG 230-T92.
Order from OTS $0.50 60-21063

Trans. of *Radiotekhnika i Elektronika (USSR) 1959, v. 4, no. 1, p. 21-[27].

General expressions are obtained for the absorption of a wave propagating in the atmosphere. A humid atmosphere with several parameters that change exponentially with altitude is used as the model.

Molecular Physics and Spectroscopy

Kalinin, S. K., Marzuvanov, V. L. and others.
ATLAS OF SPECTRAL LINES FOR A GRATING SPECTROGRAPH. [1959] 2p. 3 refs.
Order from MDF $3.00 MDF K-206

Trans. of *A[kademiya] N[auk] SSSR. Izvestiya. Ser[iya] Fiz[icheskaya] 1959, v. 23, no. 9, p. 1061-1063.

The announcement is made that the compilation of an atlas of spectral lines has been started for use with the new high-dispersion grating spectrographs that are being produced by Soviet industry. The atlas contains plates and a description. A portion of the spectrum of iron of length 66 A is given on each plate. A wavelength scale is plotted along the iron spectrum, where each scale division is 1 A. The position of the spectral lines is marked by strokes. The wavelength of each line is presented side by side with the symbol for the element. The iron spectrum was photographed on a DFS-3 spectrograph with a 600 line/mm grating (4 A/mm dispersion) and the films were enlarged 20 times in conformance with the standard enlargement of a spectroscopic projector. The plate size is 370 mm. The total length of the iron spectrum is about 25 m.

Morero, D., Santambrogio, A. and others.
INFRARED ANALYSIS OF POLYBUTADIENES OBTAINED BY STEREOSPECIFIC SYNTHESIS. [1959] [12]p. 11 refs.
Order from SLA mi$2.40, ph$3.30 60-14213

Trans. of [Ia] Chimica e l'Industria (Italy) 1959, v. 41, no. 8, p. 758-762.

Sidorov, T. A. and Sobolev, N. N.
INFRA RED SPECTRUM AND MOLECULAR STRUCTURE OF PHOSPHORUS OXIDE (Infrakrasnyy Spektr i Struktura Molekuly Fosforistogo Angidrida).
July 58, 7p. 6 refs. C. T. S. no. 457.
Order from LC or SLA mi$1.80, ph$1.80 60-13311

Trans. of Optika i Spektroskopiya (USSR) 1957, v. 2, no. 6, p. 710-716.

The infra red spectrum of phosphorus oxide has been studied in the region 2.5-24μ. It is shown that the infra red and Raman spectra can only be interpreted in terms of a P_4O_6 molecule belonging to the point group T_d. An interpretation of the vibrational spectrum is given. (Author's abstract)

Sidorov, T. A. and Sobolev, N. N.
INFRA-RED SPECTRUM AND STRUCTURE OF THE MOLECULE OF PHOSPHORUS PENTOXIDE (Infrakrasnyy Spektr i Struktura Molekuly Fosfornogo Angidrida). June 58, 7p. 9 refs. C. T. S. no. 458.
Order from LC or SLA mi$1.80, ph$1.80 60-13312

Trans. of Optika i Spektroskopiya (USSR) 1957, v. 2, no. 6, p. 717-723.

The infra-red spectrum of the readily volatile modification of phosphorus pentoxide has been studied in the region 2.5 - 24μ. It is shown that the infra-red and Raman spectra are in better agreement with a molecular model P_4O_{10} belonging to the point group T_d, than with any other model. This is in agreement with an X-ray investigation. An interpretation of the vibrational spectrum is given. (Author's abstract)

Optics

STATE OPTICAL INSTITUTE IM. S. I. VAVILOV (Gosudarstvennyy Ordena Lenina Opticheskiy Institut imeni S. I. Vavilova). 21 Dec 59 [44]p. 231 refs. AF 1256380.
Order from LC or SLA mi$3.30, ph$7.80 60-13524

Trans. from Soviet and Soviet bloc publications, 1918-59.

This report consists of three parts: I. Organization. II. Biographic and bibliographic data on 14 Soviet scientists associated with the institute. III. Recommended literature. (Contractor's abstract)

Stoyanov, I. G., Zaytseva, P. V., and Bezlepkin, S. V.
CHAMBER FOR ELECTRON MICROSCOPE AND ELECTRON DIFFRACTION INVESTIGATIONS OF OBJECTS IN A GAS MEDIUM. [1959] 2p.
Order from MDF $2.00 MDF S-140

Trans. of Author's Certificate No. 118563 USSR, appl. 16 Oct 57, No. 584676/26.

The chamber windows for the entrance and exit of the electron beam are made from a formless carbon-collodion film which, in contrast to known formless films, has no porosity, which thus endows it with a good vacuum-insulation quality. The preparation of such a film is made on the surface of a fluid in which the collodion does not swell, as mercury, for example. To impart thermal stability to the film, it is covered by a thin (about 10 Å) carbon film. The use of such a film, which hermetically seals the chamber but leaves it transparent, will, in conjunction with a simple commutating system permitting the chamber to be connected alternately either to a vacuum pump or to cylinders containing some kind of gas, make the system completely insulated from the vacuum system of the electron gun. (Extracted from the report)

Solid State Physics

Lipshteyn, R. A. and Shtern, E. N.
THE EFFECT OF MOISTURE ON DIELECTRIC LOSSES IN LIQUID DIELECTRICS, tr. by R. R. Daisley. [1959] [14]p. 4 refs. Trans. no. 1018; M 346.
Order from LC or SLA mi$2.40, ph$3.30 59-22416

Trans. of Khimiya i Tekhnologiya Topliv i Masel, (USSR) 1958 [v. 3] no. 9, p. 29-34.

The tangent of the dielectric loss angle (tan δ) was determined with a type MDP bridge at a 50-c frequency and an electric field strength of 1 kv/mm under conditions specified by GOST 6581-51 in a plane electrode (with quartz discs) in an airtight metal chamber. When the water formed a true solution with the oil it had practically no effect on tan δ, but when it was undissolved, it caused a sharp increase. Results showed that there is a water concentration threshold in a given oil for a given temperature and relative humidity, above which tan δ increases sharply. Dielectric losses in the oil, associated with the presence of water are explained by cataphoretic conductivity.

Lu, Yu-lung.
SEMICONDUCTORS OF SPHALERITE STRUCTURE. 10 Dec 59, 10p. 5 refs. JPRS: L-1120-N.
Order from OTS $0.50 60-11102

Trans. of K'o Hsüeh T'ung Pao (Chinese People's Republic) 1959, no. 16, p. 511-513.

Information is surveyed on (1) binary compounds of zinc-blende structure, (2) the influence of change of bonding on electrical properties, (3) the formation of solid solutions in compounds of zinc blende structures, and (4) methods of locating new semiconductors.

Mamedov, Kh. S. and Belov, N. V.
CRYSTAL STRUCTURE OF WOLLASTONITE (Kristallicheskaya Struktura Vol'astonita). June 58, 9p. 7 refs. C. T. S. no. 483.
Order from LC or SLA mi$1.80, ph$1.80 60-13227

Trans. of Akademiya Nauk SSSR. Doklady, 1956 v. 107, no. 3, p. 463-466.

Mash, D. I. and Lebedev, P. N.
THE ROTATION OF THE POLARISATION PLANE IN A LONGITUDINAL MAGNETIC FIELD (FARADAY'S EFFECT) IN THE MILLIMETRIC WAVE-BAND. [1959] [4]p. 4 refs. M396.
Order from LC or SLA mi$1.80, ph$1.80 59-22464

Trans. of *Zhurnal Tekhnicheskoy Fiziki (USSR) 1957 [v. 27] no. 2, p. 360-363.

The application of industrially produced ferrites for the magnetic rotation of the plane of polarization was studied according to the method of C. L. Hogan (Bell System Tech. J. 31: 1, 1952). Ferrites of the following types were studied: NTs-500, NTs-250, NTs-100, NTs-45, NTs-40, NTs-38, NTs-31, NF-25, B-1000, NiAl, RCh-50, RCh-15, RCh-10, MM-5, 3-N, 3435, 252, 4535, 471, 203, 461, NiMg, etc. The best results were obtained with NTs-500 and B-1000. Losses were comparatively small and did not depend on the external magnetic field. Good results were also obtained with the NiMg ferrite. Loss curves for various ferrite rods were in good agreement with theoretical calculations of H. Suhl and L. R. Walker (Bell System Tech. J. 33: 4, 1954) and A. G. Fox et al. (Bell System Tech. J. 34: 1, 1955).

Skryshevskiy, A. F.
ON THE STRUCTURE OF MOLTEN Au-Sn COMPOUNDS, tr. by E. Bishop. [1959] [12]p. 3 refs. Translation no. 119; M371.
Order from LC or SLA mi$2.40, ph$3.30 59-22440

Trans. of Ukrayins'k[yy] Fiz[ychnyy] Zhur[nal] (USSR) 1957, v. 2, no. 4, p. 363-368.

An X-ray investigation showed that the nature of the atomic distribution in AuSn, $AuSn_2$ and $AuSn_4$ alloys above the melting point differs substantially from the type which occurs in 'liquid eutectics' and substitutional metal alloys. The structure of the alloys is primarily determined by the interaction between the gold and tin atoms and by their physico-chemical nature. In the melts, as in the crystal lattices, the Au atoms tend to take Sn atoms as their nearest neighbours and vice versa. Changes in the Sn concentration have a substantial influence on the alloy structure. This is reflected in the change of intensity of the maxima and in their position. With increasing tin concentration, there are increases in the mean interatomic distance and the co-ordination number. In AuSn melts there is a tendency for the distribution of neighbouring atoms to be the same as that characteristic of the solid phase.

Trofimenko, A. P. and Fedorus, G. A.
THE THERMALLY EXCITED CURRENT IN CdS MONOCRYSTALS (Doslidzhennya Termichno Zbudzhenogo Strumu v Monokristalakh CdS). Nov 59, 7p. 7 refs. RTS no. 1270.
Order from LC or SLA mi$1.80, ph$1.80 60-13014

Trans. of Ukrayins'kyy Fizychnyy Zhurnal (USSR) 1958, v. 3, no. 4, p. 468-473.

CdS monocrystals treated in various ways have been studied in the range from -210 to +150°C. It is found that the thermally excited current shows only one peak in the range from -190 to -170°C with specimens that have been annealed under vacuum, in argon, in hydrogen, or in cadmium vapour. Specimens treated in sulphur vapour show several peaks. The depths are estimated for levels caused by excess cadmium and sulphur, and for those caused by traces of silver and copper. (Author's abstract)

Vdovin, Yu. A., Grafov, B. M., and Myamlin, V. A.
RECTIFYING EFFECT OF AN ELECTROLYTE-ELECTRON SEMI-CONDUCTOR CONTACT. [1959] 6p. 3 refs.
Order from MDF $3.00 MDF V-140

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1959, v. 129, no. 4, p. 827-830.

The present paper is devoted to a study of the boundary separating two phases, a semiconductor and an electrolyte. The problem is formulated exactly as in Akad. Nauk SSSR Doklady 124: 350, 1959 (translations are available from LC or SLA as 59-16139 and 60-10913), however, holes are taken into account and it is assumed that donor levels are completely ionized in the impurity electron semiconductor and that the acceptor levels are completely filled. The impurity levels are considered to be distributed uniformly over the semiconductor volume. If the contact layer is impoverished of both electrons and holes too in such a system in equilibrium, then a modified rectification, not related to the p-n junction, arises in this system. A computation shows that for a sufficiently large value of ψ^*, which was introduced in the expression $P_\infty e^{\psi^*} (1 - \nu)\psi^*$, and initial impoverishment of the contact from electrons, the volt-ampere characteristic has the characteristic step with the curve almost vertical and a very small blocking current. A substantial deficiency of the contact is the existence of an unusual breakdown voltage which equals the forbidden band width in order of magnitude. Therefore, the case considered is most interesting for semiconductors with a wide forbidden band. The rectifying properties of the contact do not appear for potentials $\psi_{tot} > \psi^*$ because of the large volume hole charge. (See also 60-12255)

Wang, Ping-nan.
THE PREPARATION OF SEMICONDUCTOR SILICON. 9 Dec 59, 11p. 15 refs. JPRS: L-1121-N.
Order from OTS $0.50 60-11103

Trans. of K'o Hsüeh T'ung Pao (Chinese People's Republic) 1959, no. 16, p. 514-516.

A survey.

Zhdanov, S. P.
REVERSIBLE ISOTHERMS FOR THE ADSORPTION OF WATER ON QUARTZ [Obratimyye Izotermy Adsorbtsii Vody na Kvartse]. Oct 59, 8p. 19 refs. RTS no. 1169.
Order from LC or SLA mi$1.80, ph$1.80 60-13180

Trans. of Akademiya Nauk SSSR. Doklady, 1958, v. 120, no. 1, p. 103-106.

Results are presented of investigations on the adsorption of water vapour on four samples of quartz powders differing from one another in respect of the magnitude of the specific surface and origin of the quartz. Three of the samples were prepared by grinding crystals of quartz of various origins with subsequent treatment of the powder in HCl and careful washing with water to remove traces of Cl'. The fourth and most finely dispersed was obtained from crystals of opaque quartz by a similar method, but to separate the finest fraction the powder was elutriated in water for a long period.

Theoretical Physics

Kochin, N. E., Kibel, I. A., and Roze, N. V.
THEORETICAL HYDROMECHANICS. [1956] [984]p. 75 refs. F-TS-7462-RE; AD-129 210.
Order from LC or SLA mi$11.10, ph$149.70 60-15615

Trans. of mono. Teoreticheskaya Gidromekhanika, Moscow-Leningrad, 1948.

Contents:
The theoretical concepts of gas dynamics
A. The equations of gas dynamics
B. Steady flow: a two-dimensional problem
C. Steady flows: a three-dimensional problem
D. Unsteady motion
The motion of a viscous fluid
A. The basic equation of motion for a viscous fluid
B. Precise solutions
C. Approximate solutions: small Reynolds numbers
D. Approximate solutions: large Reynolds numbers
Elements of the theory of turbulence
A. Turbulence and instability
B. The development of turbulence

Vedenov, A. A. and Rudakov, L. I.
ON THE MOTION OF A CHARGED PARTICLE IN RAPIDLY ALTERNATING ELECTRO-MAGNETIC FIELDS. [1959] 9p. 3 refs. M 359.
Order from LC or SLA mi$1. 80, ph$1. 80 59-22428

Trans. of mono. Fizika Plazmy, 1958, v. 4, pub. by Acad. of Sciences USSR, 1958.

It is shown in a concrete case how one can remove the limitation $|v|/\omega \ll 1$, using, in order to find the solution, only the smallness of $r_{\parallel}/L$ and δ/L, where δ is the displacement of the particle during the time $1/\Omega$. The notation of Hellwig (Z. Naturforsch. 10a; ϕ, 1955) is used. (Author)

Thermodynamics

Konakov, P. K., Filimonov, S. S., and Khrustalev, B. A.
CALCULATION OF HEAT EXCHANGE IN COMBUSTION CHAMBERS (O Raschete Teploobmena v Kotel'nykh Topkakh). July 58, 12p. 12 refs. C. T. S. no. 499.
Order from LC or SLA mi$2. 40, ph$3. 30 60-13327

Trans. of Teploenergetika (USSR) [v. 4] no. 8, p. 48-53.

Semenchenko, V. K.
FALSE CRITICAL POINTS AND POST-CRITICAL TRANSITIONS (Lozhnye Kriticheskiye Tochki i Zakriticheskiye Perekhody). Jan 60, 7p. 8 refs. RTS no. 1223.
Order from LC or SLA mi$1. 80, ph$1. 80 60-15064

Trans. of Akademiya Nauk SSSR. Doklady [1953] v. 92, no. 3, p. 625-627.

See also 60-13011

Semenchenko, V. K.
THE PHYSICAL MEANING OF THE CONCEPTS CRITICAL REGION AND CRITICAL POINT AND THEIR EXPERIMENTAL DETERMINATION [O Fizicheskom Smysle Ponyatii Kriticheskaya Oblast' i Kriticheskaya Tochka i ob ikh Eksperimental'nom Opredelenii], Nov 59, 7p. 16 refs. RTS no. 1224.
Order from LC or SLA mi$1. 80, ph$1. 80 60-13011

Trans. of Akademiya Nauk SSSR. Doklady, 1952, v. 87, no. 3, p. 441-443.

See also 60-15064

Shitsman, M. Ye.
HEAT TRANSFER TO WATER, OXYGEN AND CARBON DIOXIDE IN THE APPROXIMATELY CRITICAL RANGE (Teplootdacha k Vode, Kislorodu i Dvuokisi Ugleroda v Okolokriticheskoy Oblasti). Nov 59, 10p. 10 refs. RTS no. 1229.
Order from LC or SLA mi$1. 80, ph$1. 80 60-13013

Trans. of Teploenergetika (USSR) [v. 6] no. 1, p. 68-72.

Treshchov, G. G.
EXPERIMENTAL INVESTIGATION OF THE MECHANISM OF HEAT TRANSFER WITH SURFACE BOILING OF WATER (Eksperimentalnoye Issledovaniye Mekhanizma Teploobmena pri Poverkhnostnom Kipenii Vody). June 58, 8p. 2 refs. C. T. S. no. 465.
Order from LC or SLA mi$1. 80, ph$1. 80 60-13223

Trans. of Teploenergetika (USSR) 1957, v. 4, no. 5, p. 44-48.

Wave Propagation

Al'pert, Ya. L.
COMPUTATION OF THE FIELD OF LF AND VLF RADIOWAVES OVER THE EARTH'S SURFACE UNDER NATURAL CONDITIONS. Nov 59, 17p. 24 refs. T 320 R.
Order from LC or SLA mi$2. 40, ph$3. 30 60-14028

Trans. of Radiotekhnika i Elektronika (USSR) 1956, v. 1, no. 3, p. 281-292.

Results are presented of theoretical calculations of the propagation, over the earth's surface, of electromagnetic waves in the 500- to 30,000-cycle range, with allowance for the stratiform inhomogeneity of the ionosphere and for the dependence of ionospheric conductivity on frequency. The pole equation is solved for the selected model of the ionosphere, and thus the wave-numbers of the discrete spectrum of waves forming the field at the point of observation are calculated. Analysis of the "interference coefficient" has shown that the phase and amplitude of the

field vary in a complicated irregular fashion in relation to distance and frequency. Graphs were constructed for the relationship between field intensity and frequency for various distances in the 500- to 10,000-km range. Field intensity measurements known from the literature and also results from other experiments are compared with the theoretical computations. A good agreement is found, even to a number of details.

Al'pert, Ya. L., Ginzburg, V. L., and Feynburg, E. L.
RADIOWAVE PROPAGATION. [1959]
Order from MDF mi$25.00 MDF A-137

Partial trans. (Pt. 1, Chaps. V, VII, IX, X; Pt. 2, Chaps. III, IV; Pt. 3, Chap. V; Pt. 4, Chaps. VI, VII) of mono. pub. Mos[cow] 1953, 883p.

See also PB 123 430 - 123 438

Kochura, A. I.
ON THE ASYMPTOTIC EXPANSION OF THE SOLUTION OF A BOUNDARY PROBLEM OF DIFFRACTION THEORY, tr. by Morris D. Friedman. Sep 59 [7]p. 9 refs. AFCRC-TN-59-767; K-192; AD-228 037.
Order from LC or SLA mi$1.80, ph$1.80 59-22733

Trans. of A[kademiya] N[auk] URSR [Kiev]. Dopovidi, 1958, no. 11, p. 1157-1160.
Also available from MDF $2.50 as MDF K-192 [1959] 5p.

The following problem is considered. Let some bounded region, S_i, with a smooth contour, L, exist in an unbounded plane. The function, u, is required that satisfies the following conditions, where k_1 is large and positive: (1) $\Delta u - k_e^2 u = 0$, in S_e, and $\Delta u - k_i^2 u = 0$, in S_i; (2) $u_e\Big|_L = u_i\Big|_L$, and $(\partial u_e/\partial n)\Big|_L = (\partial u_i/\partial n)\Big|_L$; (3) u has a singularity of the type $(1/2\pi)\ln[1/R(P_o, P)]$ at the point $P_o \in S_e$; and (4) u becomes zero at infinity. It is shown that the asymptotic expansion of u in the domain S_e, taking into account terms of the order $(1/k_i)^3$ is a function u_3 that satisfies the conditions (1) $\Delta u_3 - k_e^2 u_3 = 0$, in S_e

$$(2)\ u_3\Big|_L = \left(\frac{1}{k_i} + \frac{\varkappa}{2k_i^2} + \frac{3\varkappa^2}{8k_i^3}\right)\frac{\partial u_3}{\partial n}\Big|_L + \frac{1}{2k_i^2}(u_3)''_{SS}\Big|_L$$

(3) u_3 has a singularity such as $(1/2\pi)\ln[1/R(P_o, P)]$ at the point $P_o \in S_e$ (4) u_3 becomes zero at infinity.

Kochura, A. I.
ON THE ASYMPTOTIC EXPANSION OF THE SOLUTION OF A BOUNDARY PROBLEM OF DIFFRACTION THEORY. [1959] 5p. 9 refs.
Order from MDF $2.50 MDF K-192

Trans. of A[kademiya] N[auk] URSR [Kiev]. Dopovidi, 1958, no. 11, p. 1157-1160.

For abstract see 59-22733 above.

RESEARCH METHODS, TECHNIQUES AND EQUIPMENT

ACADEMY OF SCIENCES OF THE BELORUSSKAYA SSR. 13 Nov 59 [63]p. (79 figs. omitted) 10 refs. AF 1256692.
Order from LC or SLA mi$3.90, ph$10.80 60-13196

Trans. from Soviet publications, 1957-59.

Information is presented on the history of the Academy, its structure, scientific cadres, latest developments, publication activities, its work in coordination and application of scientific research, and shortcomings.

AKADEMIYA NAUK SSSR. DOKLADY, 1959, (Reports of the Academy of Sciences SSSR). [1960]
Order from OTS $1.40, $20.00/6 mo.
Foreign $1.65, $24.50/6 mo.

Vol. 127, no. 1, p. 9-232, PB 141 015T-47
Vol. 127, no. 5, p. 943-1143, PB 141 015T-45
Vol. 127, no. 6, p. 1151-1321, PB 141 015T-48
Vol. 128, no. 1, p. 9-215, PB 141 015T-49
Vol. 128, no. 2, p. 223-432, PB 141 015T-51
Vol. 128, no. 3, p. 439-640, PB 141 015T-50
Vol. 128, no. 4, p. 647-864, PB 141 015T-52

Consists of abstracts in English.

CYBERNETICS AND COMPUTERS IN THE USSR. 16 Nov 59, 56p. 16 refs. JPRS: 2001-N.
Order from OTS $1.50 60-11023

Contents:
Brief Outline of Elements of Cybernetics and its Application. Trans. of [Akademiya Nauk Kazakhskoy SSR, Alma Ata. Vestnik, 1956, v. 12, no. 1, p. 25-39].
The Basic Features of Engineering Cybernetics, by V. V. Solodovnikov. Trans. from Avtomicheskoye Upravleniye i Vychislitel'naya Tekhnika (USSR) 1958 [v. 1] no. 1.
Cybernetic Problems. Trans. of Priroda (USSR) 1959 [v. 48] no. 6, p. 62-68.

SCIENTIFIC INFORMATION REPT. 12 Feb 60, 106p.
Order from OTS $2.75, $28.00/year PB 131 891T-40

Consists of unevaluated information extracted from publications of USSR, Eastern Europe, and China.

Khaul', T.
ON THE BASIC TRENDS IN THE DEVELOPMENT OF SCIENTIFIC RESEARCH OF THE ACADEMY OF SCIENCES ESTONIAN SSR IN 1959 IN THE LIGHT OF THE RESOLUTIONS OF THE 21ST CONGRESS OF THE CPSU. 24 Dec 59, 11p. JPRS: 2098-N.
Order from OTS $0.50 60-11149

Trans. of Akademiya Nauk Estonskoy SSR. Izvestiya. Ser[iya] Tekh[nicheskikh] i Fiz[iko]-Mat[ematicheskikh] Nauk, 1959, no. 3, p. 211-215.

The important areas which are to be preferentially developed during the next seven years are discussed for the fields of physico-mathematical sciences, chemical sciences, and biological sciences.

Lyapunov, A. A.
MATHEMATICAL INVESTIGATIONS RELATED TO THE USE OF ELECTRONIC COMPUTING MACHINES, tr. by Morris D. Friedman. Sep 59 [30]p. AFCRC-TN-59-753; L-125; AD-227 175.
Order from LC or SLA mi$2.70, ph$4.80 59-22221

Trans. of mono. Matematika v SSSR za Sorok Let 1917-1957, Moscow, 1959, p. 857-877.
Also available from MDF $14.00 as MDF L-125 [1959] 28p.

The survey consists of 4 sections: (1) theoretical investigations from the programming branch, (2) nonarithematical utilization of computers, (3) theoretical investigations of control (or guidance) systems, and (4) other problems of mathematical cybernetics.

Makhl', R.
ON THE COMPLETION OF THE PROBLEM PLAN OF SCIENTIFIC RESEARCH BY THE DEPARTMENT OF TECHNICAL AND PHYSICO-MATHEMATICAL SCIENCES OF THE ACADEMY OF SCIENCES ESTONIAN SSR FOR 1958. 24 Dec 59, 8p. JPRS: 2099-N.
Order from OTS $0.50 60-11150

Trans. of Akademiya Nauk Estonskoy SSR. Izvestiya. Ser[iya] Tekh[nicheskikh] i Fiz[iko]-Mat[ematicheskikh] Nauk, 1959, no. 3, p. 216-219.

Results are summarized of the work done in 1958 by the following individual institutes: The Institute of Chemistry, the Institute of Power Engineering, the Institute of Construction and Building Materials, the Institute of Geology, the Institute of Physics and Astronomy, and the Institute of Energetics.

BOOK REVIEWS

The following book reviews can be ordered by number from LC or SLA. Each review includes, in addition to the material shown, a detailed statement of the coverage of the book and a detailed table of contents. The length of each review is indicated at the end of the entry.

BR-SOV/2382
Avramenko, F. D., V.I. Veyts, B.A. Gurevich, V.I. Denisov, A.G. Zakharin, N.A. Karaulov, I.S. Kolosov, N.N. Krachkovskiy, S.N. Kritskiy, M. M. Lebedev, T.K. Leont'yeva, M.F. Menkel', A.S. Nekrasov, G.I. Rossiyevskiy, and B. I. Shvorin
OSNOVNYYE VOPROSY PLANIROVANIYA YEDINOY ENERGETICHESKOY SISTEMY SSSR (Basic Problems in Planning a Unified Power System for the USSR.) Moscow, Izd-vo AN SSSR, 1959. 174 p. Errata slip inserted. 2,500 copies printed. 11 p. Microfilm $2.40 Photocopy $3.30

BR-CZECH/2487
Kucera, Jaroslav, and Josef Hapl
VINUTI ELEKTRICKYCH STROJU TOCIVYCH (Winding of Electric Rotating Machines) Prague, Nakladatelstvi Ceskoslovenske Akademie Ved, 1959. 899p. Errata slip inserted. 2,250 copies printed. 13p. Microfilm $2.40 Photocopy $3.30

BR-BUL/2488
Yovchev, Yovcho Sm,
POLEZNI IZKOPAYEMI, CH. 2, TOM 1 (Ore Deposits, Pt. 2, Vol 1) Sofia, Durzhavno izd-vo "Nauki i izkustvo," 1958. 511 p. 1,562 copies printed. 26 p. Microfilm $2.70 Photocopy $4.80

BR-SOV/2568
Akademiya nauk SSSR. Institut nauchno-tekhnicheskoy informatsii
METALLURGIYA I METALLOVEDENIYE; KHIMIYA METALLOVEDENIYE I OBRABOTKA TITANA (Metallurgy and Metallography; Chemistry, Metallography, and Treatment of Titanium) Moscow, Izd-vo AN SSSR, 1959. 383 p. (Series: Itogi nauki; tekhnicheskiye nauki, 2) Errata slip inserted. 2,700 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2569
Grigor'yev, Ivan Andreyevich, and Yevgeniy Romanovich Dvoretskiy
KONTROL' RAZMEROV V MASHINOSTROYENII; SPRAVOCHNOYE POSOBIYE (Inspection of Dimensions in Machine Building; Manual) Moscow, Mashgiz, 1959. 399 p. Errata slip inserted. 10,000 copies printed. 12 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2583
International Conference on Peaceful Uses of Atomic Energy. 2nd Geneva, 1958.
DOKLADY SOVETSKIKH UCHENYKH; YADERNYYE REAKTORY I YADERNAYA ENERGETIKA. (Reports of Soviet Scientists; Nuclear Reactors and Nuclear Power) Moscow, Atomizdat, 1959. 707 p. (Series: Its: Trudy, vol. 2) Errata slip inserted. 8,000 copies printed. 9 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2617
Knorre, G. F.,
TOPOCHNYYE PROTSESSY (Furnace Combustion Processes) 2d ed., rev. and enl. Moscow, Gosenergoizdat, 1959. 395 p. 8,500 copies printed. 14 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2629
Bychkov, Vasiliy Pavlovich
TEORIYA AVTOMATICHESKOGO REGULIROVANIYA I REGULYATORY. LEKTSIYA 2. ELEMENTY SISTEM AVTOMATICHESKOGO REGULIROVANIYA (Theory of Automatic Control and Control Equipment Lecture 2. Components of Automatic Control Systems) Moscow, 1958. 53 p. 1,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2655
Tetel'baum, Il'ya Markovich
ELEKTRICHESKOYE MODELIROVANIYE (Electric Analoging) Moscow, Fizmatgiz, 1959. 319 p. 10,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2656
AVTOMATICHESKOYE UPRAVLENIYE I VYCHISLITEL'NAYA TEKHNIKA, VYP. 2 (Automatic Control and Computation Technique, Nr. 2) Moscow, Mashgiz, 1959. 316 p. Errata slip inserted. 8,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2665
Moscow. Aviatsionnyy institut imeni Sergo Ordzhonikidze
ISSLEDOVANIYE TOCHNOSTI I POMEKHOUSTOYCHIVOSTI FAZOVYKH RADIOPELENGATOROV; SBORNIK STATEY (Study of the Accuracy and Noise Protection of Phase Radio Direction Finders; Collection of Articles) Leningrad, Sudpromgiz, 1959. 92 p. (Series: Its: Trudy, vyp. 105) Errata slip inserted. 4,500 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2670
Kozlov, Vladimir Alekseyevich
METODIKA TEKHNIKO-EKONOMICHESKIKH RASCHETOV GORODSKIKH RASPREDELITEL'NYKH ELEKTROSETEY (Methods of Technico-economic Calculation of City Electric Distribution Networks) Moscow, Gosenergoizdat, 1958. 87 p. 4,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2690
Kopanevich, Yevgeniy Grigor'yevich
TOCHNOST' DETALEY, IZGOTOVLYAYEMYKH V METALLICHESKIKH FORMAKH (Precision of Parts Made in Metal Molds) Moscow, Mashgiz, 1958. 201 p. 3,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2694
USSR. Vsesoyuznyy komitet standartov
STAL' UGLERODISTAYA OBYKNOVENNOGO KACHESTVA; SORTOVOY I FASONNYY PROKAT (Commercial Grade Carbon Steel; Merchant Bars and Structural Shapes) Official edition. Moscow, Standartgiz, 1956. 205 p. (Series: Gosudarstvennyye standarty SSSR) Errata slip inserted. 6,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2689
Natanson, Emil' Markovich
KOLLOIDNYYE METALLY (Colloid Metals) Kiyev, Izd-vo AN UkrSSR, 1959. 344 p. Errata slip inserted. 3,000 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2698
Shifrin, Mikhail Yul'yevich
DEFEKTY TSEL'NOKATANYKH KOLES (Defects in Wrought Steel Wheels) Moscow, Metallurgizdat, 1959. 202 p. Errata slip inserted. 1,500 copies printed. 6 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2703
Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye
MEKHANIZATSIYA I AVTOMATIZATSIYA V MASHINOSTROYENII; [sbornik statey] (Mechanization and Automation in Machine Manufacturing; Collection of Articles) Moscow, Mashgiz, 1959. 286 p. 8,000 copies printed. 6 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2713
International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958
DOKLADY SOVETSKIKH UCHENYKH; POLUCHENIYE I PRIMENENIYE IZOTOPOV (Reports of Soviet Scientists; Production and Application of Isotopes) Moscow, Atomizdat, 1959. 388 p. (Series: Its: Trudy, vol.6) 8,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2714
International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958
DOKLADY SOVETSKIKH UCHENYKH; YADERNOYE GORYUCHEYE I REAKTORNYYE METALLY. (Reports of Soviet Scientists; Nuclear Fuel and Reactor Metals) Moscow, Atomizdat, 1959. 670 p. (Series: Its: Trudy, vol. 3. 8,000 copies printed. 11 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2717
Kolgov, Boris Nikolayevich
KATALIZ V ORGANICHESKOY KHIMII (Catalysis in Organic Chemistry) 2d ed., rev. and enl. Leningrad, Goskhimizdat, 1959. 807 p. Errata slip inserted. 9,000 copies printed. 19 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2718
Akademiya nauk SSR. Institut nauchnoy informatsii
KHIMIYA I TEKHNOLOGIYA SINTETICHESKIKH VYSOKOMOLEKULYARNYKH SOYEDINENIY; [Obzor literatury /za 1953-1956 gg./po khimii i tekhnologii sinteticheskikh vysokomolekulyarnykh soyedineniy] vyp. 1 (Chemistry and Technology of Synthetic High Molecular Weight Compounds; Literature Review for the Years 1953-1956 on the Chemistry and Technology of Synthetic High Molecular Weight compounds, No. 1) Moscow, Izd-vo AN SSSR, 1959. 2 v. (1095 p.) (Series: Itogi nauki; khimicheskiye nauki, 3) Errata slip inserted. 4,000 copies printed. 9 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2722
Verete, Arnol'd Grigor'yevich
SUDOVYYE PARCVYYE TURGINY (Marine Steam Turbines) Leningrad, Izd-vo Morskoy transport, 1959. 406 p. Errata slip inserted. 5,000 copies printed. 12 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2724
Kiselev, Vasiliy Ignat'yevich
NASOSY, KOMPRESSORY I VENTILYATORY (Pumps, Compressors, and Fans) Moscow, Metallurgizdat, 1959. 400 p. Errata slip inserted. 13,600 copies printed. 10 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2725
Ozol', Vladimir Lyudvigovich
OPYT AVTOMATIZATSII TRUBOPROKATNOY USTANOVKI (Automation of a Pipe-rolling Mill) Khar'kov Metallurgizdat, 1959. 79 p. Errata slip inserted. 2,250 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2729
Dobrovol'skiy, Viktor Afanas'yevich Konstantin Ivanovich Zablonskiy, Solomon L'vovich Mak, Aleksandr Semenovich Radchik, and Lazar' Borisovich Erlikh
DETALI MASHIN (Machine Elements) 3rd ed., rev. and enl. Kiyev, Mashgiz, 1959. 581 p. 100,000 copies printed. 15 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2737
Mel'nichuk, Petr Ivanovich
ISSLEDOVANIYE MODULYA UPRUGOSTI I TVERDOSTI STAREYUSHCHIKH SPLAVOV NA MEDNOY OSNOVE (Studying the Modulus of Elasticity and Hardness of Aging Copperbase Alloys) Kiyev, AN Ukrainskoy SSR, 1957. 42 p. 1,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2738
Pevzner, Boris Moiseyevich
SUDOVYYE TSENTROBEZHNYYE I OSEVYYE NASOSY (Centrifugal and Axial Marine Pumps) Leningrad, Sudpromgiz, 1958. 319 p. Errata

slip inserted. 4,500 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2751
Krasnov, Isay Borisovich
PLANIROVANIYE ELEKTRIFIKATSII NARODNOGO KHOZYAYSTVA (Electrification Planning in the National Economy) Moscow, Gosplanizdat, 1958. 63 p. (Series: V pomoshch' ekonomistu i planoviku) Errata slip inserted. 12,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2754
Akademiya stroitel'stva i arkhitektury SSSR. Institut osnovaniy i podzemnykh sooruzheniy
VREMENNYYE TEKHNICHESKIYE UKAZANIYA PO STROITEL'STVU TONNELEY SPOSOBOM PRODAVLIVANIYA (Temporary Technical Specifications for Tunnel Construction by the Scielding Method) Moscow, Gosstroyizdat, 1958. 178 p. 2,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

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Vekua, Il'ya Nestorovich
OBOBSHCHENNYYE ANALITICHESKIYE FUNKTSII (Generalized Analytical Functions) Moscow, Fizmatgiz, 1959. 628 p. Errata slip inserted. 6,000 copies printed. 9 p. Microfilm $1.80 Photocopy $1.80

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Tsentral'nyy nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut
ISSLEDOVANIYE RASPYLIVANIYA I GORENIYA DIZEL'NOGO TOPLIVA (Investigation of Atomization and Combustion of Diesel Fuel) Moscow, Mashgiz, 1959. 115p. (Series: Its: [Trudy] vyp. 87) 1,275 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

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POLUPROVODNIKOVYYE TERMOSOPROTIVLENIYA; SBORNIK STATEY (Thermistors; Collection of Articles) Moscow, Gosenergoizdat, 1959. 229 p. 13,000 copies printed. 12 p. Microfilm $2.40 Photocopy $3.30

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NOVOYE V ZHELEZNODOROZHNOY AVTOMATIKE, TELEMEKHANIKE I SVYAZI; SBORNIK STATEY (New Developments in Railroad Automation, Remote Control, and Communications; Collection of Articles) Moscow, Transzheldorizdat, 1959. 198 p. 3,000 copies printed. 6 p. Microfilm $1.80 Photocopy $1.80

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Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Leningradskoye oblastnoye pravleniye
GIDRODINAMICHESKIYE PEREDACHI (Hydrodynamic Transmissions) Moscow, Mashgiz, 1959. 245 p. (Series: Its: Trudy, vyp. 52) 3,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

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Sosnenko, Mikhail Nikolayevich
SOVREMENNYYE LITEYNYYE FORMY (Modern Foundry Molds) Moscow, Mashgiz, 1959. 274 p. 15,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

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Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Belorusskoye respublikanskoye pravleniye
PUTI SOVERSHENSTVOVANIYA TEKHNOLOGICHESKIKH PROTSESSOV NA MINSKOM PODSHIPNIKOVOM ZAVODE (Improving Technological Processes at the Minsk Bearing Plant) Minsk, Gos. Izd-vo BSSR, 1958. 226 p. 2,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

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Hrdý, Jaroslav
OBSLUHA MALYCH VODNICH ELEKTRAREN (Maintenance of Small Hydroelectric Power Stations) Prague, Statni Nakladatelstvi Technicke Literatury, 1958. 202 p. 2,000 copies printed. 12 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2790
Drachev, Gennadiy Grigor'yevich, and Lev Aleksandrovich Nikolayev
AKKYMULYATORY PODVIZHNOGO SOSTAVA I IKH OBSLUZHIVANIYE (Rolling Stock Storage Batteries and Their Maintenance) Moscow, Transzheldorizdat, 1959. 123 p. 10,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

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Belyayev, A. A.
OPYT EKSPLUATATSII KOTEL'NOGO OBORUDOVANIYA PERVOY ELEKTRICHESKOY STANTSII SVERKHVYSOKIKH PARAMETROV (Operating Boiler Installation Equipment of the First Superhigh Parameter Electric Power Station) Moscow, Gosenergoizdat, 1958. 63 p. (Series: Iz opyta sovetskoy energetiki) 5,350 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

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Leypunskiy, Ovsey Il'ich
GAMMA-IZLUCHENIYE ATOMNOGO VZRYVA (Gamma Radiation From an Atomic Explosion) Moscow, Atomizdat, 1959. 154 p. Errata slip inserted. 7,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2803
Alfimova, Irina Alekseyevna, Polina Moiseyevna Blekher, and Antonina Ivanova Zaytseva
SBORNIK ZADACH PO TOKARNOMU DELU (Collection of Problems on Lathe Operation) 3rd ed., rev. and enl. Moscow, Trudrezervizdat, 1959. 194 p. 25,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2804
Filippov, Sergey Ivanovich, Petr Pavlovich Arsent'yev, and Valentin Viktorovich Yakovlev

KONVERTERNAYA PLAVKA STALI (Converter Steelmaking) Moscow, Metallurgizdat, 1959. 432 p. 3,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2807
Shchigolev, Petr Vasil'yevich
ELEKTROLITICHESKOYE I KHIMICHESKOYE POLIROVANIYE METALLOV (Electrolytic and Chemical Polishing of Metals) Moscow, AN SSSR, 1959. 186 p. Errata slip inserted. 5,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2809
Akademiya nauk SSSR. Otdeleniye Khimicheskikh nauk
TERMODINAMIKA I STROYENIYE RASTVOROV; TRUDY SOVESHCHANIYA... (Thermodynamics and Structure of Solutions; Transactions of the Conference Held January 27-30, 1958) Moscow, Izd-vo AN SSSR, 1959. 295 p. 3,000 copies printed. 10 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2810
Florinskiy, Mikhail Mikhaylovich,
NASOSY I NASOSNYYE STANTSII (Pumps and Pumping Stations) Moscow, Sel'khozgiz, 1959. 364 p. Errata slip inserted. 5,000 copies printed. 9 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2812
Akademiya nauk SSSR. Institut metallurgii
VYPLAVKA FERROSPLAVOV V DOMENNOY PECHI NA DUT'YE, OBOGASHCHENNOM KISLORODOM (Blast Furnace Production of Ferroalloys With Oxygen-enriched Blast) Moscow, Izd-vo AN SSSR, 1959. 142 p. Errata slip inserted. 2,700 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2813
SINKHRONNYYE DVIGATELI; SBORNIK STATEY (Synchronous Motors; Collection of Articles) Moscow, Gosenergoizdat, 1959. 222 p. 6,500 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2814
Levin, Abram Naumovich
PLASTMASSY V MASHINOSTROYENII (Plastics in Mechanical Engineering) Moscow, Izd-vo "Zaniye", 1959. 44 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya IV, 1959, no. 21) 48,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2815
Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlennosti. Leningradskoye oblastnoye pravleniye. Sektsiya priborov teploenergeticheskogo kontrolya i avtomatiki.
TEPLOENERGETICHESKIYE I KHIMIKO-TEKHNOLOGICHESKIYE PRIBORY I REGULYATORY (Instruments and Regulating Devices in Heat Power and Chemical Engineering) Moscow, Mashgiz, 1959. 210 p. (Series: [Sbornik trudov] vyp. 4) Errata slip inserted. 5,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-POL/2816
Trzebiatowski, Wlodzimierz
CHEMIA NIEORGANICZNA (Inorganic Chemistry) Warszawa, Panstwowe Wyd-wo naukowe, 1959. 779 p. Errata slip inserted. 10,200 copies printed. 33 p. Microfilm $3.00 Photocopy $6.30

BR-SOV/2823
Stotskiy, Lev Rudol'fovich
TEPLOSILOVOYE KHOZYAYSTVO PREDPRIYATIY NEFTYANOY I GAZOVOY PROMYSHLENNOSTI (Heat-Power Economy of Oil and Gas Industry Enterprises) Moscow, Gostoptekhizdat, 1959. 552 p. Errata slip inserted. 4,650 copies printed. 10 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2826
Sevost'yanov, Aleksey Grigor'yevich
PRIMENENIYE RADIOAKTIVNYKH ZLUCHENIY DLYA KONTROLYA, REGULIROVANIYA I ISSLEDOVANIY V PRYADIL'NOM PROIZVODSTVE (Use of Radioactive Rays for Control, Regulation, and Research in the Spinning Industry) Moscow, Gizlegprom, 1958. 57 p. 2,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-CZECH/2827
Panc, Vladimir
STATIKA TENKOSTENNYCH PRUTU A KONSTRUKCI (Design of Thin-walled Beams and Structures for Static Loads) Prague, Nakladatelstvi Ceskoslovenske Akademie Ved, 1959. 423 p. (Series: Ceskoslovenska Akademie Ved. Studie a prameny. Sekce technicka) 1,750 copies printed. 9 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2828
Shaburov, Solomon Ivanovich
SPETSIAL'NYYE VOPROSY PROYEKTIROVANIYA GORNYKH LINIY ELEKTROPEREDACHI (Special Problems in Designing Electric Transmission Lines in Mountainous Areas) Moscow, Gosenergoizdat, 1959. 111 p. 3,450 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2831
MEKHANIZATSIYA I AVTOMATIZATSIYA TRUDOYEMKIKH PROTSESSOV V LITEYNOM PROIZVODSTVE (Mechanization and Automation of Labor-consuming Processes in Foundry Practice) Moscow, Mashgiz, 1959. 226 p. Errata slip inserted. 4,000 copies printed. 9 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2832
Ivanov, Vladimir Nikolayevich
BRAK I DEFEKTY V LIT'YE PO VYPLAVLYAYEMYM MODELYAM (Rejects and Defects in Investment Casting) Moscow, Mashgiz, 1959. 71 p. 4,300 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2833
Medovar, Boris Izraylevich
ELEKTRODUGOVAYA SVARKA AUSTENITNYKH STALEY (Arc Welding of Austenitic Steels) Kiyev,

Mashgiz, 1958. 97 p. (Series: Biblioteka svarshchika) 10,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2834
Moscow. Inzhenerno-fizicheskiy institut
AVTOMATIKA I TELEMEKHANIKA; SBORNIK STATEY (Automation and Telemechanics; Collection of Articles) Moscow, 1958. 115 p. 3,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2838
Akademiya nauk Kazakhskoy SSR. Institut yadernoy fiziki
TRUDY/LABRATORIYA METALLOVEDENIYA I FIZIKI MATALLOV/, TOM 2 (Transactions of the Institute of Nuclear Physics, Kazakh S.S.R. Academy of Sciences/Laboratory for Metallurgical Science a and Physics of Metals/, Vol 2) Alma-Ata, Izd-vo AN Kazakhskoy SSR, 1959. 169 p. 1,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2839
International Conference on the Peaceful Uses of Atomic Energy. 2d, Geneva, 1958
YADERNAYA ENERGETIKA; SBORNIK DOKLADOV ...PO NEKOTORYM VOPROSAM YADERNOY ENERGETIKI (Nuclear Power Engineering; Collection of Reports of the Conference on Some Problems in Nuclear Power Engineering) Moscow, Inoizdat, 1959. 179 p. Number of copies printed not given. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2840
USSR. Ministerstvo geologii i okhrany nedr
INSTRUKTSIYA PO SOSTAVLENIYU I PODGOTOVKE K IZDANIYU GEOLOGICHESKOY KARTY I KARTY POLEZNYKH ISKOPAYEMYKH MASSHTABA 1:200,000; OBYAZATEL'NA DLYA GEOLOGICHESKIKH ORGANIZATSIY MINISTERSTVA VEDOMSTV SSSR (Instructions for the Compilation and Preparation of Geological Maps and Maps of Mineral Resources at a Scale of 1:200,000; Mandatory for Geological Organizations of Ministries and Agencies of the USSR) Moscow, Gosgeoltekhizdat, 1955. 46 p., 2 fold maps. 10,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2843
Soveshchaniye po ratsional'nym sposobam fundamentostroyeniya na vechnomerzlykh gruntakh
TRUDY...(Transactions of the Conference on Efficient Methods of Building Foundations on Permafrost Soils) Moscow, Gosstroyizdat, 1959. 131 p. Errata slip inserted. 1,200 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2846
Kazinskiy, Vasiliy Aleksandrovich
MATEMATICHESKIYE TABLITSY DLYA APPROKSIMATSII GEOFIZICHESKIKH ANOMALIY I REDUKTSIY INTERPOLYATSIONNYMI MNOGOCHLENAMI (Mathematical Tables for Approximating Geophysical Anomalies and Reductions by Means of Interpolative Polynomials) Moscow, Izd-vo AN SSSR, 1959. 89 p. 2,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2847
Akademiya nauk SSSR. Institut poluprovodnikov
NAUCHNAYA LITERATURA PO POLUPROVODNIKOVYM ELEKTRONNYM PRIBORAM; DETEKTORY I TRANZISTORY. BIBLIOGRAFIYA 1945-1955 (Scientific Literature on Semiconductor Electronic Devices; Detectors and Transistors. Bibliography from 1945-1955) Moscow, Izd-vo AN SSSR, 1959. 326 p. 2,700 copies printed. 6 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2848
Sapozhkov, Mikhail Andreyevich
ZASHCHITA TRAKTOV RADIO I PROVODNOY TELEFONNOY SVYAZI OT POMEKH I SHUMOV (Protection of Radio and Wire Telephone Communication From Interferences and Noises) Moscow, Svyaz'izdat, 1959. 253 p. Errata slip inserted. 5,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2849
Neyman, Leonid Robertovich and Pavel Lazarevich Kalantarov
TEORETICHESKIYE OSNOVY ELEKTROTEKHNIKI CH. 3: TEORIYA ELEKTROMAGNITNOGO POLYA (Theoretical Fundamentals of Electrical Engineering Pt. 3: Theory of the Electromagnetic Field) 5th ed., rev. Moscow, Gosenergoizdat, 1959. 231 p. 75,000 copies printed. 10 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2850
Sivers, Arkadiy Petrovich Nikolay Aleksandrovich Suslov, and Vasiliy Ignat'yevich Metel'skiy
OSNOVY RADIOLOKATSII (Fundamentals of Radar) Leningrad, Sudpromgiz, 1959. 350 p. Errata slip inserted. 25,500 copies printed. 9 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2851
Feygin, Viktor Iosifovich
ELEKTRONNYYE PRIBORY V METALLURGII (Electronic Instruments in Metallurgy) Moscow, Metallurgizdat, 1959. 221 p. Errata slip inserted. 6,100 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2853
Zaychenko, I. Z.,
OSNOVY TEORII DINAMICHESKOY USTOYCHIVOSTI GIDROPEREDACH METALLOREZHUSHCHKIKH STANKOV; AVTOREFERAT DISSERTATSII, PREDSTAVLENNOY NA SOISKANIYE USCHNOY STEPENI DOKTORA TEKHNICHESKIKH NAUK (Fundamentals of the Theory of Dynamic Stability of Hydraulic Circuits in Metal-cutting Machine Tools; Author's Abstract of a Dissertation Presented for the Degree of Doctor of Technical Sciences) Moscow, Tsentr. byuro tekhn. informatsii ENIMS, 1958. 19 p. 200 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2854
Kartavov, Sergey Alekseyevich
TEKHNOLOGICHESKIYE RASCHETY V MASHINOSTROYENII (PO NAIBOLEYE VEROYATNOMU VREMENI OBRABOTKI) (Technological Calculations in Machinery Manufacture; Based on the Most Probable Lengths of Time Required for Operations) Kiyev, Gostekhizdat Ukrainskoy SSSR, 1958. 58 p. 1,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2855
Rabotin, Aleksandr Nikolayevich
TOCHNOST' OBRABOTKI DETALEY MASHIN (Accuracy in Machining Machine Elements) 3d ed. Moscow, Mashgiz, 1959. 41 p. (Series: Nauchno-populyarnaya biblioteka rabochego stanochnika, vyp. 21) 8,500 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2856
Khovrin, Ivan Nikolayevich
FREZERNAYA OBRABOTKA KRUPNYKH DETALEY (Milling Large Machine Elements) Moscow, Mashgiz, 1958. 23 p. (Series: Obmen tekhnicheskim opytom) 7,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2859
Akademiya nauk SSSR. Institut metallurgii
GORYACHIYE TRESHCHINY V SVARNYKH SOYEDINENIYAKH SLITKAKH I OTLIVKAKH (Hot Cracks in Welds, Ingots, and Castings) Moscow, Izd-vo AN SSSR, 1959. 163 p. 2,700 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2863
Gorshkov, Aleksandr Pavlovich
KAK USTANOVIT' RADIOPRIYEMNIK (How to Install Radio Receivers) 3d ed., rev. Moscow, Svyaz'izdat, 1958. 85 p. 195,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2864
Gorin, Boris Nikolayevich and Meyer Vol'fovich Lokshin
IZMERENIYE UGLA DIELEKTRICHESKIKH POTER' PRI NALICHII VLIYANIY (Measurement of Dielectric Loss Angle in the Presence of Influencing Effects) Moscow, Gosenergoizdat, 1959. 55 p. (Series: Iz opyta sovetskoy energetiki) 4,300 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2865
Beregovskiy, Yakov Mikhaylovich and Isidor Leonovich Gornshteyn
ZATUKHANIYE V LINIYAKH PROVODNOGO VESHCHANIYA I METODY YEGO IZMERENIYA (Attenuation in Wire-Broadcasting Lines and Methods of Its Measuring) Moscow, Svyaz'izdat, 1959. 49 p. (Series: Lektsii po tekhnike svyazi) 11,200 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2866
Kreyn, Solomon Efraimovich and Revekka Viktorovna Kulakova
NEFTYANYYE IZOLYATSIONNYYE MASLA (Petroleum Insulating Oils) Moscow, Gosenergoizdat, 1959. 143 p. 6,000 copies printed. 6 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2867
Vol'fkovich, S. I., Z. A. Rogovin, Yu. P. Rudenko, and I. V. Shmanenkov
OBSHCHAYA KHIMICHESKAYA TEKHNOLOGIYA, T. 2 (General Chemical Technology, Vol 2) Moscow, Goskhimizdat, 1959. 848 p. Errata slip inserted. 25,000 copies printed. 36 p. Microfilm $3.00 Photocopy $6.30

BR-SOV/2869
Smolyankin, Ivan Vasil'yevich
ORGANIZATSIYA SBYTA PRODUKTSII NA METALLURGICHESKOM ZAVODE (Organization of Product Distribution at a Metallurgical Plant) Moscow, Metallurgizdat, 1959. 114 p. 1,400 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2872
Vsesoyuznyy proyektno-tekhnologicheskiy institut tyazhelogo mashinogtroyeniya
NORMATIVY DLYA TEKHNICHESKOGO NORMIROVANIYA RABOT NA PRODOL'NOSTROGAL'NYKH, POPERECHNO-STROGAL'NYKH I DOLBEZHNYKH STANKAKH (Norms for Setting Standards for Planer, Shaping Machine, and Slotting Mill Operations) 2nd ed. Moscow, Mashgiz, 1958. 149 p. Errata slip inserted. 11,500 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2873
Moscow, Vsesoyuznyy proyektno-tekhnologicheskiy institut tyazhelogo mashinostroyeniya
NORMATIVY DLYA TEKHNICHESKOGO NORMIROVANIYA RABOT NA SVERLIL'NYKH STANKAKH (Norms for Setting Work Standards for Drill Presses) 2d ed. Moscow, Mashgiz, 1958. 199 p. 11,500 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2874
Kravets, Torichan Pavlovich,
TRUDY PO FIZIKI (Works in Physics) Moscow, Izd-vo AN SSSR, 1959. 339 p. Errata slip inserted. 2,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2875
Makarov, Vyacheslav Nikolayevich
METODIKA OBUCHENIYA NA ODNOMESTNOM PLANERE (Flight Training Method For a Single Seat Glider) Moscow, Izd-vo DOSAAF, 1957. 84 p. Errata slip inserted. 7,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2877
Ginko, Sergey Sergeyevich
OSNOVY GIDROTEKHNIKI (Principles of Hydraulic Engineering) Leningrad, Gidrometeoizdat, 1958. 362 p. Errata slip inserted. 5,000 copies printed. 9 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2878
Barkovskiy, Nikolay Dmitriyevich
KRATKOSROCHNOYE KREDITOVANIYE PROMYSHLENNOSTI SOVNARKHOZOV (Short Term Credit for Industries of National Economic Councils) Moscow, Gosfinizdat, 1959. 111 p. Errata slip inserted. 7,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2882
Kalashnikov, Anatoliy Mikhaylovich, and Yakov Vasil'yevich Stepuk
OSNOVY RADIOTEKHNIKI I RADIOLOKATSII, KNIGA 1: KOLEBATEL'NYYE SISTEMY (Principles of Radio Engineering and Radar, Book 1: Oscillation Systems) Moscow, Voyenizdat, 1959. 354 p. No. of copies printed not given. 12 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2884
Moscow. Dom nauchno-tekhnicheskoy propagandy imeni F. E. Dzerzhinskogo
PLASTMASSY V MASHINOSTROYENII (Plastics in Machine Building) Moscow, Mashgiz, 1959. 236 p. Errata slip inserted. 8,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2885
Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya
POVYSHENIYE PROCHNOSTI ELEMENTOV KONSTRUKTSIY I DETALEY MASHIN (Increasing the Strength of Constructional and Machine Elements) Moscow, Mashgiz, 1959. 210 p. (Series: Its: [Sbornik] kn. 91) 5,500 copies printed. 10 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2886
Mirenburg, Lev Abramovich
REMONT ROTOROV TURBINNYKH GENERATOROV V STANTSIONNYKH USLOVIYAKH (Repair of Turbo generator Rotors Under Field Conditions) 2d ed., rev. and enl. Moscow, Gosenergoizdat, 1959. 439 p. 8,000 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2888
USSR. Ministerstvo vysshego obrazovaniya
ASPIRANTURA; SPRAVOCHNIK DLYA POSTUPAYUSHCHIKH V ASPIRANTURU I SOISKATELEY UCHENYKH STEPENEY (Aspiratura [Graduate Studies]; Handbook for Students Entering Graduate Studies and Seeking an Academic Degree) Moscow, Gos. izd-vo "Sovetskaya nauka," 1958. 328 p. 7,000 copies printed. 14 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2889
Moskovskiy dom nauchno-tekhnicheskoy propagandy imeni F. E. Dzerzhinskogo
SBORNIK ANNOTATSIY RATSIONALIZATORSKIKH PREDLOZHENIY I TEKHNICHESKIKH USOVERSHENSTVOVANIY V MASHINOSTROYENII, VYP. 2 (Collection of Notes on Proposed Methods for Increasing Efficiency and Improving Engineering Design in Machine Construction, No. 2) Moscow, 1958. 212 p. 5,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2890
Moskovskiy dom nauchno-tekhnicheskoy propagandy imeni F. E. Dzerzhinskogo
SBORNIK ANNOTATSIY RATSIONALIZATORSKIKH PREDLOZHENIY I TEKHNICHESKIKH USOVERSHENSTVOVANIY V MASHINOSTROYENII, VYP. 3 (Collection of Notes on Proposed Methods for Increasing Efficiency and Improving Engineering Design in Machine Construction, No. 3) Moscow, 1958. 115 p. 5,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2892
Abdullayev, M. K.
TEKHNIKA BEZOPASNOSTI PRI SVARKE METALLOV (Safety Engineering in Welding) 2nd ed., enl. [Moscow] Profizdat, 1954. 126 p. (Series: V. pomoshch' profaktivu po okhrane truda) Errata slip inserted. 50,000 copies printed. 7 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2893
Mandryka, A. P.
BALLISTICHESKIYE ISSLEDOVANIYA LEONARDA EYLERA (Ballistic Studies of Leonhard Euler) Moscow, Izd-vo AN SSSR, 1958. 183 p. 2,500 copies printed. 1 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2895
Mitrofanov, Sergey Petrovich,
NAUCHNYYE OSNOVY GRUPPOVOY TEKHNOLOGII (Scientific Fundamentals of Group Manufacturing Methods) [Leningrad] Lenizdat, 1959. 434 p. 20,000 copies printed. 9 p. Microfilm $1.80 Photocopy $1.80

BR-POL/2896
Lipski, Jan
LOTNICZA APARATURA TLENOWA (Aircraft Oxygen Equipment) Warsaw, Wyd-wa komunikacyjne, 1958. 140 p. 1,130 copies printed. 9 p. Microfilm $1.80 Photocopy $1.80

BR-POL/2897
Witkowski, Ryszard, and Janusz Wojciechowski and Pawel Elsztein
SMIGLOWCE (Helicopters) Warsaw, Wyd-wa komunikacyjne, 1958. 320 p. 3,140 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2898
Yel'yashkevich, Samuil Abramovich
PROVERKA LAMP V TELEVIZORAKH (Checking of Television Tubes) 2d ed., rev. and enl. Moscow, Gosenergoizdat, 1959. 62 p. (Series: Massovaya radiobiblioteka, vyp. 329) 165,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2900
Romanyuk, Anna Andreyevna
APPARATCHIK KISLORDNOY USTANOVKI; UCHEBNOYE POSOBIYE DLYA PROIZVODSTVENNO-

TEKHNICHESKOGO OBUCHENIYA RABOCHIKH (Oxygen Plant Operation; Textbook for Industrial and Technical Training of Workers) Sverdlovsk, Metallurgizdat, 1959. 214 p. Errata slip inserted. 4,300 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2901
Kulikov, Fedor Vasil'yevich and Il'ya Romanovich Lekhtsiyer
OSNOVNYYE METODY MYAGKOY I TVERDOY PAYKI (Basic Methods of Soldering and Brazing) Moscow, Trudrezervizdat, 1958. 127 p. 15,000 copies printed. (Series: Biblioteka molodogo rabochego) 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2902
Mikhaylov, Mikhail Ivanovich,
VLIYANIYE VNESHNIKH ELEKTROMAGNITNYKH POLEY NA TSEPI PROVODNOY SVYAZI I ZASHCHITNYYE MEROPRIYATIYA (Effect of External Electromagnetic Fields on Wire Communication Circuits and Protection Measures) Moscow, Svyaz'izdat, 1959. 582 p. Errata slip inserted. 4,500 copies printed. 15 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2903
ELEKTROIZOLYATSIONNYYE MATERIALY. CH. 2: METODY ISPYTANIYA I PRIMENENIYA MATERIALOV (Electrical Insulating Materials. Pt. 2: Methods of Testing and of Application of the Materials) Moscow, Gosenergoizdat, 1959. 476 p. (Series: Spravochnik po elektrotekhnicheskim materialam, t. 2) Errata slip inserted. 30,000 copies printed. 11 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2906
Moscow. Vyssheye tekhnicheskoye uchilishche imeni Baumana. Kafedra matematicheskikh mashin
VYCHISLITEL'NAYA TEKHNIKA (Computer Techniques) Moscow, Mashgiz, 1959. 153 p. (Series: Moscow. Vyssheye tekhnicheskoye uchilishche. Sbornik, No. 2) 2,500 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2908
Anisimov, Sergey Fedorovich
CHELOVEK I MASHINA; FILOSOFSKIYE PROBLEMY KIBERNETIKI (Man and Machine; Philosophical Problems of Cybernetics) Moscow, 1959. 53 p. 24,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2909
Chistyakov, Aleksandr Mikhaylovich
NOVAYA METODIKA MODEL'NYKH ISSLEDOVANIY TURBIN REAKTIVNOGO TIPA I GIDROTURBINNYKH BLOKOV GES (New Methods of Using Models in the Study of Reaction Turbines and Hydraulic Turbine Units for Hydroelectric Power Plants) Moscow, Gosenergoizdat, 1958. 88 p. (Series: Tekhnicheskaya informatsiya) Errata slip inserted. 1,500 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2911
Sominskiy, Vladimir Samuilovich, and Isay Semenovich Strogov (Slivker)
KHIMIYA-NARODU (Chemistry for the Benefit of the People) [Leningrad] Lenizdat, 1959. 102 p. 5,000 copies printed. 2 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2913
Sotnikov, Sergey Kuz'mich
SVERKHDAL'NIY PRIYEM TELEVIDENIYA (Long-Distance Television Reception) Moscow, Gosenergoizdat, 1958. 62 p. (Series: Massovaya radiobiblioteka, vyp. 312) 50,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2914
Vasil'yev, Kirill Vasil'yevich, and Il'ya Samoylovich Shapiro
DUGOVAYA ELEKTRICHESKAYA REZKA METALLOV (Electric-arc Cutting of Metals) Moscow, Trudrezervizdat, 1958. 66 p. (Series: Novaya tekhnika i peredovyye metody truda) 10,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2915
Kempinskiy, Mikhail Mendelevich
PROYEKTIROVANIYE MEKHANIZMOV IZMERITEL'NYKH PRIBOROV (Designing Mechanisms for Use in Measuring Instruments) Moscow, Mashgiz, 1959. 142 p. Errata slip inserted. 5,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2916
Kadaner, Lev Il'ich
NOVI METALY SUCHASNOYI TEKHNIKY (New Metals in Present-Day Engineering) Kyyiv, Derzhtekhvydav URSR, 1958. 39 p. (Series: Naukovo-populyarna biblioteka) 8,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2917
Reutov, Oleg Aleksandrovich
ORGANICHESKIY SINTEZ I YEGO PERSPEKTIVY (Organic Synthesis and Prospects for Its Development) Moscow, Gostekhizdat, 1958. 95 p. (Series: Nauchno-populyarnaya biblioteka) 500,000 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2919
Selivanov, I.I., and A.I. Burger
STROITEL'NYYE MASHINY (Building Machinery) Leningrad, Gosstroyizdat, 1958. 310 p. 25,000 copies printed. 11 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2920
USSR. Vsesoyuznyy komitet standartov
STANKI METALLOOBRABATYVAYUSHCHIYE; OSNOVNYYE PARAMETRY I RAZMERY (Metalworking Machines; Basic Parameters and Dimensions) Official ed. Moscow, 1958. 95 p. (Series: SSSR. Gosudarstvennyye standarty) 6,000 copies printed. 5 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2922
USSR. Vsesoyuznyy komitet standartov
ORGANICHESKIYE KRASITELI I VSPOMOGATEL'NYYE VESHCHESTVA (Organic Paints and Auxiliary Materials) Official ed. Moscow, 1958. 830 p. (Series: USSR. Gosudarstvennyye standarty) Errata slip inserted. 15,000 copies printed. 10 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2923
Sizov, Vasiliy Nikolayevich
STROITEL'NYYE RABOTY V ZIMNIKH USLOVIYAKH (Construction Work Under Winter Conditions) 3d ed., rev. and enl. Moscow, Gosstroyizdat, 1958. 538 p. 10,000 copies printed. 19 p. Microfilm $2.40 Photocopy $3.30

BR-SOV/2924
Bolotov, Boris Aleksandrovich, Vyacheslav Aleksandrovich Komarov, and Tat'yana Vsevolodovna Nizovkina
PRAKTICHESKIYE RABOTY PO ORGANICHESKOMU KATALIZU (Practical Studies in Organic Catalysis) [Leningrad] Izd-vo Leningr. univ., 1959. 194 p. Errata slip inserted. 4,120 copies printed. 6 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2925
Baku. Azerbaydzhanskiy nauchno-issledovatel'skiy institut neftepererabatyvayushchey promyshlennosti imeni V. V. Kuybysheva.
SBORNIK TRUDOV, VYP. 2. (Collection of Works, No. 2) Baku, Aznefteizdat, 1958. 373 p. Errata slip inserted. 500 copies printed. 8 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2928
Andozhskiy, Vsevolod Dmitriyevich, Aleksandr Ivanovich Belyanin, Vladimir L'vovich Veyts, Yevgeniy Grigor'yevich Ginzburg, Aleksey Illarionovich Yefimovich, Igor' Semenovich Krivenko, Vladimir Mikhaylovich Shannikov, and Izrail' Nakhmanovich Frenkel'
ZUBCHATYYE I CHERVYACHNYYE PEREDACHI NEKOTORYYE VOPROSY TEORII, RASCHETA I PROIZVODSTVA (Spur Gear and Worm Gear Drives; Some Problems in Theory, Design, and Manufacture) Moscow, Mashgiz, 1959. 219 p. Errata slip inserted. 9,000 copies printed. 6 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2929
Moscow. Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov
TIPOVYYE TEKHNOLOGICHESKIYE PROTSESSY OBRABOTKI KORPUSNYKH DETALEY SREDNIKH RAZMEROV; RUKOVODYASHCHIYE MATERIALY (Standard Manufacturing Processes for Machining Medium-size Housings; Directives) Moscow, Tsentr. byuro tekhn. informatsii, 1958. 219 p. Errata slip inserted. 1,500 copies printed. 3 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2930
Kosmachev, Ivan Grigor'yevich,
AVTOMATIZATSIYA NAPLAVKI REZHUSHCHIKH INSTRUMENTOV (Automatic Hard Facing of Metal-cutting Machine Tools) Moscow, Trudrezervizdat, 1958. 110 p. (Series: Novaya tekhnika i perodovyye metody truda) 5,000 copies printed. 4 p. Microfilm $1.80 Photocopy $1.80

BR-SOV/2931
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555	MDF B-147	618	PAL 60-12	583	RIS-61062	560
557	MDF B-147	618	PB 131 891T-41	619	RIS-61063	560
620	MDF B-151	566	PB 131 891T-42	619	RIS-97069	615
553	MDF B-152	612	PB 141 034T-9	598	RTS-1117	567
550	MDF D-132	581	PB 141 034T-10	598	RTS-1174	568
609	MDF G-148	598	PB 141 053T-16	611	RTS-1185	583
581	MDF G-165	581	PB 141 055T-23	558	RTS-1193	589
578	MDF G-169	575	PB 141 055T-24	558	RTS-1200	587
577	MDF G-172	614	PB 141 057T-16	596	RTS-1202	586
600	MDF I-120	614	PB 141 057T-17	596	RTS-1210	602
585	MDF I-121	613	PB 141 071T-12	559	RTS-1211	586
579	MDF K-198	599	PB 141 075T-25	559	RTS-1217	586
572	MDF K-203	611	PB 141 082T-26	610	RTS-1221	570
619	MDF K-204	582	PB 141 096T-14	579	RTS-1222	570
577	MDF L-130	599	PB 141 096T-15	579	RTS-1238	583
611	MDF L-131	581	PB 141 096T-16	579	RTS-1239	605
559	MDF M-126	612	PB 141 099T-18	580	RTS-1241	596
553	MDF M-127	615	PB 141 105T-16	580	RTS-1262	586
579	MDF N-108	615	PB 141 106T-20	580	RTS-1274	585
579	MDF P-141	569	PB 141 121T-5	585	RTS-1275	597
546	MDF P-142	620	PB 141 131T-15	600	RTS-1287	550
554	MDF P-143	620	PB 141 131T-16	600	RTS-1290	582
554	MDF S-143	619	PB 141 131T-17	600	RTS-1312	589
584	MDF S-144	619	PB 141 132T-14	600	RTS-1313	590
578	MDF S-146	598	PB 141 132T-15	600	RTS-1320	577
548	MDF S-147	613	PB 141 136T-19	604	RTS-1342	546
574	MDF S-148	616	PB 141 162T	556	RTS-1367	593
552	MDF S-149	616	PB 141 178T	603	RTS-1368	593
620	MDF T-141	617	PB 141 199T	579	SCL-T-247	571
616	MDF T-143	609	PB 141 242T	579	SCL-T-261	573
619	NAMRU Trans-18	558	PB 141 247T	546	STS-274	581
545	NAMRU Trans-19	558	PB 141 262T	554	TRC Trans-1002	566
615	NAMRU Trans-20	557	PB 141 263T	554	USL rept. 80	612
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